UNIVERSITY
OF MICHIGAN
JUN 17 1952
SCIENCE
LIBRARY

GEO

ROCKS and MINERALS

MAY - JUNE, 1952

A Magazine for Mineralogists, Geologists and Collectors

Official Journal of the Rocks and Minerals Association

60c

Whole No. 228

Vol. 27, No. 5 - 6

47th LIST OF FINE MINERALS

AXINITE, Switzerland. Well xld. w. Adularia xl. & Chlorite. 3x2½ .... $ 6.00
AXINITE, Cornwall. Xld. on mass. 2½x2 .... 2.50
APATITE, Ontario. Well terminated reddish xl. 3x1¼ 2.50
SLAVIKITE, Czechoslovakia. Coating on rock. 2½x1½ 1.25
CHALCOPYRITE, Siegen, Germany. Brilliant brass-yellow xld. mass. 2x1½ 2.00
PYROMORPHITE, Phoenixville, Pa. Well xld. "old-timer". 2¼x1½ 3.50
HEMATITE, Cumberland. Good mammillary "Kidney Ore." 3½x2x1½ ... 3.00
CELESTITE, Sicily. Well xld. with Sulphur. 3x2½ 2.50
CHALCOCITE, Bristol, Conn. Well xld. w. Calcite xls. on rock. 3½x2½ 3.00
DOLOMITE v. TERUELITE, Teruel, Spain. Black xls. in Gypsum. 4x2x2 .. 2.50
VANADINITE, Morocco. In large brown xls. on rock. 6x3 .... 12.50
ENARGITE, Morococha, Peru. Xld. in ore. 2x1½ 2.00
EPIDOTE, Arendal, Norway. Xld. with Hornblende. 3x3x2 .... 3.50
COLEMANITE, Calico, Calif. Group of large glassy xls. 4x2x2 .... 2.50
CINNABAR, Terlingua, Texas. Micro. xld. & massive, good. 2½x2x1½ 3.50
SPINEL, Orange Co., N. Y. Group of good xls. 1½x1½ 2.00
TETRAHEDRITE, Cornwall. Xls. coated w. Chalcopyrite. 2½x1¾ 2.50
CELESTITE, Ontario. **Orange-red** radiating in rock. 3½x2x2 .... 3.00
RHODONITE v. FOWLERITE, Franklin. Group of large xls. (up to 2") w. some Franklinite. Calcite eaten out by acid. 4x4x4. (2¼ lbs.) 12.50
HIDDENITE, N. Carolina. Three ¼" to ½" xls. in box, Not cuttable. .. 12.50
HEMATITE, Brazil. Tabular xls. in parallel position. 1¼x1¼ 2.00
EPIDOTE. Franconia, N. H. Xls. w. xld. Garnet in Garnet rock. 2½x2x1½ 2.00
DANBURITE, Japan. Fine translucent grayish term. xl. 2¼x⅜" 12.50
Another 1¼x¼. (Neither is cuttable material) 5.00
GOETHITE, Cornwall. **Finely xld.** in mass. 3x2x2 .... 3.50
QUARTZ, Ellenville, N. Y. Xld. with CHALCOPYRITE xls. 3x2½x1½ .. 2.50
ZINKENITE, Wolfsberg, Harz. Xld. and xlline. mass. 2x1½x1¼ 3.50
APATITE v. FRANCOLITE, Cornwall. Well xld. on rock. 2½x2 .... 1.50
SMALTITE, Saxony. Nodular **xld.** mass. 2x1¾x1¼. Rarely found xld. .. 5.00
CHRYSOBERYL, Brazil. Fine twinned xl. group. 1½x1½ 12.50
ZARATITE, Texas, Pa. Good xlline. crust on Chromite. 3x1¾ 2.00
WOLFRAMITE, Wodgina, W. Australia. Broad plates in ore. 3x1¾ 2.50
HARMOTOME, Whitson, N. Y. Glassy xls. on rock. 3x2 .... 2.00
DUNDASITE, Carnarvonshire. With Cerussite. 2x1 .... 1.50
CHALCOSIDERITE, Cornwall. Xld. on rock. 3x2 .... 2.50
STRONTIANITE, Hamm, Germany. Radiated xlline. mass. 3x2 .... 1.50
HELVITE, Saxony. Small xls. in matrix. 2½x1½ 2.50
COVELLITE, Butte. Brilliant blue cleavage masses w. Chalcocite. 3x2x1½ 3.00
UVAROVITE, Outukumpu, Finland. Xld. w. Diopside, etc. 2x1 .... 5.00
THOMSONITE, Paterson, N. J. Xld. on Prehnite. 4½x3½ 3.50
CHALCOPYRITE, SPHALERITE & DOLOMITE xld. on rock. Laxey, Isle of Man, Great Britain. 5x3½. Very showy. 5.00
CASSITERITE, Bolivia. Translucent xl. 1x1 .... 2.00
CASSITERITE, Bolivia. Long prismatic xls. "Needele Tin." 2x1½ 2.50
STIBNITE, Japan. Xlline. mass of unterminated xls. 6x1¼x¾ 5.00
WULFENITE, Bleiberg, Austria. Good yellow xls. on rock. 6x2½x2½ .. 7.50
GOLD, California. Xld. plate. 1x⅝". 6 grams. 15.00
VESUVIANITE, Ala, Italy. Large xls. on mass. 3x2 .... 4.00
STIBNITE, Romania. In acicular xls. w. JAMESONITE on Quartz. 4x3 .. 6.00

HUGH A. FORD

OFFICE AND SHOWROOM: 110 WALL STREET NEW YORK 5, N. Y.

Telephone: BOwling Green 9-7191

No lists furnished, but inquiries for specific minerals welcomed.

ROCKS and MINERALS

PUBLISHED
BI-MONTHLY

Edited and Published by
PETER ZODAC

—

MAY - JUNE
1952

Contents for May-June, 1952

CHIPS FROM THE QUARRY 226
ADVANCING OUR MINERAL COLLECTING ACTIVITIES.
By Curt G. Segeler 227
ROCKS AND MINERALS LEAD IN REFERENCES! 229
COMING EVENTS 229, 298
URANIUM GLASS AND ITS FLUORESCENCE. *By David E. Jensen* 230
THUNDER EGGS. *By Robert D. Roots* 234
SHOCKPROOFING THE PORTABLE GEIGER COUNTER.
By Ronald L. Ives 236
NOTES ON THE HISTORY OF CRYSTALLOGRAPHY
By Duncan Stewart, Jr. 238
VOELKER BUYS HALF INTEREST IN AGATE MINES 239
MINERALOGICAL SOCIETY OF PENNSYLVANIA.
By Gerry and Will Shulman 240
YOUR FLUORESCENT CHRISTMAS TREE. *By Mrs. Paul A. Bens* 242
RESIDUAL MINERALS IN KEWEENAWAN CONGLOMERATES.
By K. Spiroff 243
MINERAL MAKE-UP — FACE PAINTING BY THE SERI INDIANS
By Joel Martin Halpern 247
WORLD NEWS ON MINERAL OCCURRENCES 250
YOUNG DANISH ENGINEER STUDIES U. S. METHODS TO APPLY
TO HUGE GREENLAND LEAD DEPOSITS 263
THE AMATEUR LAPIDARY. *Conducted by Commander John Sinkankas* 264
A FIELD TRIP TO REDINGTON CAVE, PENNSYLVANIA 270
RECENT HERKIMER "DIAMOND" HUNTING. *By Claude H. Smith* 272
OBITUARY NOTICES 275
MINERAL SHOPPER'S GUIDE. *Conducted by Charles A. Thomas* 276
THE SAND COLLECTOR. *Conducted by Peter Zodac* 280
CLUB AND SOCIETY NOTES 285
LOOKING BACK—25 YEARS AGO IN ROCKS AND MINERALS 296
PUBLICATIONS RECENTLY RECEIVED 297
INDEX TO ADVERTISERS 336

Entered as second-class matter September 13, 1926, at the Post Office at Peekskill, N. Y. under the Act of March 3, 1879.
Title registered in U. S. Patent Office. Copyright 1952 by Peter Zodac.
Specially written articles (as contributions) are desired.
Subscription price $3.00 a year; Current numbers, 60c a copy. No responsibility is assumed for subscriptions paid to agents and it is best to remit direct to the Publisher. Issued bi-monthly on the 30th of the uneven months.

Authors alone are responsible for statements made and opinions expressed in their respective articles.

ROCKS and MINERALS BOX 29, PEEKSKILL, N. Y., U.S.A.
(Office — 157 WELLS STREET — Tele. Peekskill 7-3185)
The official Journal of the Rocks and Minerals Association

CHIPS FROM THE QUARRY

AN OPEN LETTER TO PETER ZODAC

As a subscriber for ROCKS AND MINERALS my reaction to the letter of Mr. Chas. S. Knowlton, Jan. 30, 1952, sent you from Fullerton, Calif., is one of disapproval, for the following reasons:

(a) Thirty-seven states are entirely east of the Rocky Mts.

(b) Twenty-seven states, with more than two-thirds of our national population, are east of the Mississippi River.

(c) I subscribed to a western magazine, devoted to mineralogy, for several years, and changed to ROCKS AND MINERALS, not because the western publication, then devoted almost entirely to the West, was not good, but because ROCKS AND MINERALS covered the whole country, with (as we Easterners have a right to expect) an increased attention to our more local interests.

California is a great state, populous, prosperous, and progressive, but some strategic and critical minerals necessary to national defense, as well some of those of lesser importance, are either not found there, or found in insufficient quantity to warrant inattention to other sections of the country. Investigation of all mineral areas, with an estimate of their potentialities, is certainly in order in these disturbed times.

(d) A large number of great mineral discoveries have been made by amateurs, and no one section of the country has a monopoly on *all* mineral possibilities.

(e) California and other western states have been well represented in ROCKS AND MINERALS to date, and the fact that a great majority of its current advertisements concern western enterprises, and that these are continued from issue to issue, is evidence that the East pays mineralogical and financial tribute to the West, including California.

(f) The lightness with which Mr. Knowlton passed over Mr. Zodac's records of time, distance, and mineral locations, apparently looking upon them as trivial, would seem entirely unwarranted. They cannot fail to be of great assistance to any prospector, in whatever vicinity, along the routes followed.

Finally it should not be forgotten that new mineralogical clubs are being formed every month, and that more than three million persons, of all ages, are currently participating in their activities. The members include neophytes, amateurs and professionals, and the first two categories, Mr. Zodac, look to you for continual encouragement and guidance. The last, value your opinion as a consultant.

I believe the majority, including Mr. Knowlton, now that he has that peeve off his chest, approve your magazine, as being eminently fair to all sections of the country and would be greatly disappointed by any radical change in editorial or managerial policy.

Yours sincerely,
L. W. Carpenter, M.D.

April 28, 1952 Limerick, Maine

Plummers Are Moving

After 5 successful years in the mineral and gem business Plummer's are moving into larger better quarters. Property was purchased in the beautiful Sunset Cliffs area of San Diego, just a stone's throw (gemstone) from the Pacific. A modern mineral store is being built adjoining the home. While primarily a mail order business, drop in trade will be welcomed. Business hours will be extended to accomodate visitors. It has always been the policy of Plummer's to supply the unusual materials not ordinarily offered by dealers. Importations will be increased and larger varieties of gem and specimen material will be offered. Friends and customers are asked to drop in when in San Diego. The new address is 4720 Point Loma Ave., San Diego 7, California.

ROCKS and MINERALS

PUBLISHED BI-MONTHLY

Edited and Published by PETER ZODAC

MAY - JUNE 1952

ADVANCING OUR MINERAL COLLECTING ACTIVITIES

By CURT G. SEGELER

President, Queens Mineral Society, Richmond Hill, New York

Many of you will recall that the theme underlying our programs for the Society meetings during 1944 was mineral paragensis but we did nothing further than to ask each of our featured speakers to include some discussion of this subject in his presentation. Looking back we may well wonder why we did not pursue this opportunity to the point where we could apply some of the ideas in a practical way to advance our skill as mineral collectors. To some extent we may have used such information in helping us to locate certain specific types of minerals whose habits of formation and association were sufficiently unique. But this was limited at best, and lacking incentive, we took no other steps and thereby we may have missed a chance to be of real service to the science of mineralogy.

The opening tribute to Peter Zodac in the 25*th* Anniversary issue of ROCKS AND MINERALS gave Arthur Montgomery an ideal spot in which to suggest the advantages which might result from a resumption of the former close union between the amateur and the professional mineralogists. This, he pointed out, was of great mutual benefit and enjoyment. Scientific mineralogy is becoming highly specialized while all too many collectors are riding collecting just as a hobby forgetting its foundation in science. A shift toward a closer union is vitally needed.

The Constitution of our Society was wisely drawn in making definite provision for the serious study of minerals as one of its prime objects. This alone, apart from added value of a fully descriptive mineral collection, would justify reconsideration of our mineral collecting activities with Montgomery's thoughts in mind. But there is the added dividend of knowing that our efforts might be productive as well as furnishing us with relaxation, exercise and outdoor fun all of which we normally associate with our field collecting.

Adequate mineral descriptions should be far more comprehensive than the bare minimums most of us are now including with our mineral specimens. As far as I know, all Q.M.S. members put the locality and their best idea of a correct identification of each mineral on their labels. Let us call that "Minimum Acceptable Label Standard". A substandard label would be one which did not give the exact locality, perhaps only the county or even the state in which it was found. Even worse are the numerous poorly or incorrectly identified specimen labels, which, I regret to say, find their way into the best collections from time to time.

Let us now consider what we might do to go beyond our own Minimum Standards, thereby making our collections more useful, increasing our fund of knowledge and eventually providing a valuable source of scientific data. The extent to which we might want to go should be fully explored so that we will be better able to coordinate this activity and so that our methods and objectives will be consistent. Just to start the ball rolling, I have been recording the name of the mine or quarry, the date of the find and where exactly the specimen came from in relation to the various zones when I could spot them. This I do not regard as a sufficient improvement to qualify in terms of our present discussions, but a start must be made somewhere.

"Amateurs", says Montgomery, "could make a genuine contribution to the science if they wished, for they are in a position to record countless mineral

occurrences at the point of origin; but to make such a contribution would take serious study and an organized cooperative effort". This then, is the basic challenge. How to attack it could well be our underlying theme for our 1952 programs. We can, I am confident, derive a lot of pleasure from this, especially if we were to try to enlist the help of some of the many professional mineralogists who are available in New York, to guide us in the right direction.

Dr. George Tunell of the University of California in his address as retiring President of the Mineralogical Society of America contrasted laboratory and field studies of mineral formation emphasizing the importance of the former though conceding the value of the latter in these words; "the processes of formation of minerals can be observed while they are going on in some cases; in most cases, however, the processes ceased before the mineral assemblages were exposed to the view of the mineralogist and geologist, and the reactions can only be inferred from the nature of the assemblages that they produced". And who could record these assemblages better than the mineral collector in the field?

Minerals are formed in nature in many ways. They crystallize slowly from magmas deep in the earth's crust. They precipitate from hot ascending solutions. They result from the reaction of these solutions with the rocks that they infiltrate. Air and rain play their part at the surface and at considerable depth as well. Solutions are formed that in turn react with minerals they encounter giving rise to new ones. All this can be observed and recorded by the collector in the field. Perhaps he can even speculate as to just how it all happened.

Dr. Norman Bowen of the U. S. Geophysical Laboratory in accepting the Roebling Medal in 1951 talked about the need for these field observations but he humorously indicated why some mineralogists seemed to be a little reluctant. Said he, "For work in the field, I choose an area where an expert has already been around, preferably examining what one can ride up to in an automobile. When it becomes necessary to ride a horse to a locality my prowess is much less marked, and if it comes to actual foot slogging, well, least said soonest mended. But to others, I always recommend this health giving activity."

In 1945, we find the same subject entering the President's address when Dr. Kenneth K. Landes of the University of Michigan tried to encourage the scientific mineralogist not to forget the problems in the field. Looked at through an amateur's eyes the job of collecting adequate data should be a lot easier than the job of swinging a ten pound or heavier sledge by the hour just to whack out a single specimen. Yet all that gets on our records is the approximate locality and in mighty sketchy form at that.

It has been observed that the professional mineralogist has become a sort of scientific bookkeeper, a recorder of observations with the X-ray, the specific gravity balance, the goniometer and the microscope. Or sometimes, he's a chemist analyzing the composition or an engineer concerned mostly with the prospective usefulness of a mineral. Is this the real challenge now to do even more abstruse work along these lines or perhaps carrying out the same program to even greater precision? Can we amateurs take part in extending mineral knowledge by doing a better job in the field at the same time that we collect and thus learn more about the origin of minerals as they occur in nature? Even Dr. Palache of Harvard was singing in the same key a few years back pointing out that of all the branches of mineralogy, studies of occurrence in the field was the most neglected.

Yet we, the amateurs and preeminently the collectors in the field, are the ones who ride the horses, sweat out the trails with heavy tools, sometimes with camping gear to boot and almost always with a sharp eye and a camera to help if we knew how. Should we not meet these repeated challenges with an offer to help fill in the missing gaps in mineral knowledge? Look at the position of the am-

ateur in radio, in bird study or in astronomy. Hobbyist? Yes, but a darn good contributor to the advancement of the science and not without friends among the professionals.

Now, we may ask, what shall we do exactly and how? Frankly, I am not sure. So, on that score let us invite some professional opinion. Perhaps some of the men who have already raised this issue would be willing to lend a hand. Certainly our cameras could be put to good use, recording contacts or unusual minerals right in place and in color to bring out as much detail as possible. The zones in the pegmatites should show up and the camera in this way could substitute for the more laborious process of mapping with a Brunton compass. Comprehensive series of matrix specimens properly labeled as to occurrence would certainly be appreciated. That this is within our capabilities has already been demonstrated in the fine paper that one of our youngest members gave two or so years ago—you may recall the topic, Mapping the minerals of the Baylis Quarry by Danny Black. And at the time he was still in high school without any formal training in either mineralogy or geology—just interested in the locality.

I think these records would give new impetus to our mineral hobby and add real meaning to our collection. I see no reason why we can't at least try the notion to see where it leads.

ROCKS AND MINERALS LEAD IN REFERENCES!

Dear Mr. Zodac:

After reading Mr. Knowlton's letter and your excellent reply in the March-April issue, I counted the references to the literature on Colorado gem localities given in my "Colorado Gem Trails." Most of us surely consider Colorado a Western state, yet I found that there were more references to ROCKS AND MINERALS than to the other collectors' magazines combined — 20 out of a total of 36.

I thought you'd be interested in these figures. Since "Colorado Gem Trails" is now out of print, this can hardly be regarded as an advertisement! And since none of the Colorado articles in your magazine were written by me, this can be taken only as a compliment to the number of other loyal readers you have in Colorado, enthusiastic enough about ROCKS AND MINERALS to contribute so generously to it over the years.

Sincerely,
Richard M. Pearl
Colorado College
April 26, 1952 Colorado Springs, Colo.

COMING EVENTS

CALIFORNIA FEDERATION CONVENTION
Angels Camp, Calif.
June 20-22, 1952

MID-WEST FEDERATION CONVENTION
Macalester College
St. Paul, Minn.
July 1-3, 1952

BIG POW-WOW IN WASHINGTON
(A Rockhound Convention)
July 3, 4, 5, — Vantage, Wash.
Mrs. Barbara Blood, Sec., 1953
Taft Ave., Bremerton, Wash.

ROCKY MT. FEDERATION CONVENTION
AMERICAN FEDERATION CONVENTION

The two Federations will team together for one gigantic Convention in Canon City, Colorado.

June 26-29, 1952

NORTHWEST FEDERATION CONVENTION
College of Idaho
Caldwell, Idaho
August 23-25, 1952

URANIUM GLASS AND ITS FLUORESCENCE

By DAVID E. JENSEN
Department of Mineralogy, Ward's Natural Science Establishment, Inc., Rochester, N. Y.

(From a paper read before the Mineralogical Section of the Rochester Academy of Science. October 11, 1951.)

Glass is one of the most interesting and useful substances that man makes from raw minerals. It is essential in hundreds of ways to the comfort and pleasure of every one of us in our homes and in our daily life. Glass aids the chemist in his laboratory, and it is quite indispensible to the physicist and the astronomer. The backbone of many of Rochester's great industries is dependent upon glass in one form or another. Such industries as Bausch & Lomb Optical Co., Wollensak Optical Co., Eastman Kodak Co., Taylor Instrument Co., and The Pfaudler Co. (all of Rochester, N. Y.), are all manufacturers of products in which glass plays an important part. It is also well known that lovers of antiques often find great pleasure and sometimes profit in the collecting of fine examples of the glassmaker's art of the past decades or centuries.

The chemist and the physicist in their laboratories are interested primarily in the ingredients that can be mixed to make glass and also in the various properties of the glasses that can be obtained. The mineralogist, on the other hand, is apt to think of how glass may be used to identify minerals as in magnifiers, petrographic microscopes, refractometers and similar instruments. Or, if he is curious, he will think about the minerals which may be important in glass making. It may be interesting to note here in regard to antiquities that some of the ingredients of glass may be very old indeed. The St. Peter glass sand of Missouri is Ordovician in age (about 440 million years old) and the Oriskany sandstone of Pennsylvania, and Maryland is Devonian (about 350 million years old).

There is a popular legend regarding the discovery of glass. It is said that a group of Phoenician sailors built a bonfire on the sea shore to prepare their evening meal. Finding no stones on which to rest their cooking utensils, they used soda cakes which they happened to have with them. Upon finishing their meal, they were much surprised to find that the soda had disappeared and in its place was a hard shining substance that one may consider to be the first glass made by man. (The legend does not mention that this may also have been the origin of dirty dinner dishes).

It may seem strange that colored glass was known and quite widely used for some 4400 years before clear glass came into general use. A colored, glazed vase has been dated at 5000 B.C. However, the color of much very early glass was primarily due to impurities either in the sand or in the other substances used in making the glass. Iron was one of the principal impurities and caused the "bottle green" color of much old glass. Egyptians and many other glass makers did know the way in which glass might be colored by adding substances containing copper, manganese and cobalt.

It is sometimes said that we do not know how today to reproduce the brilliant and exquisite colors of the early cathedral windows or the ancient Venetian or Bohemian glassware. This may have been more or less true up to about 100 years ago but at the present time, the modern glass technologist knows more about colors than was ever known before. Of course, impurities in the sand and the other glass ingredients in the olden days were beyond the control of the glass makers and gave variety to their products as compared with the quite standard products of present day mass production.

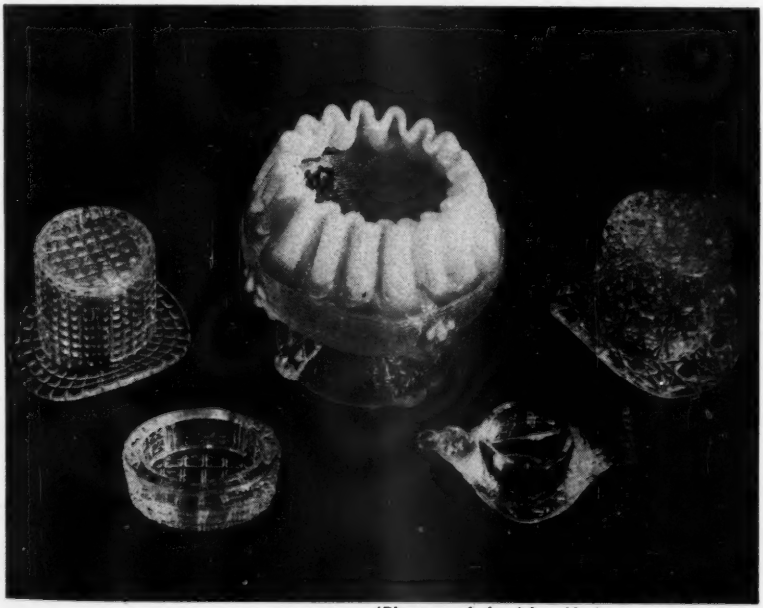
A study of the history of glassmaking is intensely interesting and often brings to light quite curious stories. For example: In the early 1800's there were many mysterious recipes for making and coloring glass. Numerous ingredients were said to be necessary yet were of no use whatsoever. It suited the manufacturers to cover their operations with a

shroud of secrecy, everyone claiming to have some peculiar method of producing the colors that was known to himself alone.

Most of the discoveries were probably accidental in the early days. The wife of a workman tending a batch of molten glass accidentally dropped her gold ring into the molten mass and bands of ruby red color appeared in the path of the melting gold. For many years all ancient ruby red glass was expensively colored by mixing gold in the molten glass. Then, in a German glass house, a copper ladle was used to lift portions of molten glass from the pot. One day it was kept at this work longer than usual so that the ladle became quite hot. Suddenly it disappeared, having melted away in the glass which was afterwards found to be full of scarlet streaks.

While there are many fascinating facets in the study of the past and present methods of coloring glass, the purpose of this report is to tell something about the various colors than can be obtained by using uranium salts as coloring agents. Most all of you will no doubt be as surprised as I was to learn of the different colors that various uranium compounds in different combinations will impart to glass. My personal interest in uranium glass is quite a recent one and it grew from a related interest in uranium minerals as well as an interest in the fluorrescence of both certain uranium minerals and certain types of uranium glass.

I am particularly indebted for much of my information to Dr. N. J. Kreidl of the Chemistry Department of Bausch & Lomb Optical Co., and to the research library of the Corning Glass Center. Dr. Kreidl is one of the world's leading authorities on the different and unusual colors that can be produced by uranium in glasses and he has written several papers on this and related subjects. (The Corning Glass Center at Corning, N. Y., has a magnificent display of ancient and modern glass. Visitors may see the famous "Steuben"



(Photograph by Mrs. Katherine H. Jensen)

Types of American pattern glass produced in yellow ("vaseline", or uranium) glass within the last century. Top, left and right: toothpick holders; center, rose bowl with opalescent rim. Bottom: two panel salt and bird salt.

glass in all stages of manufacture including engraving).

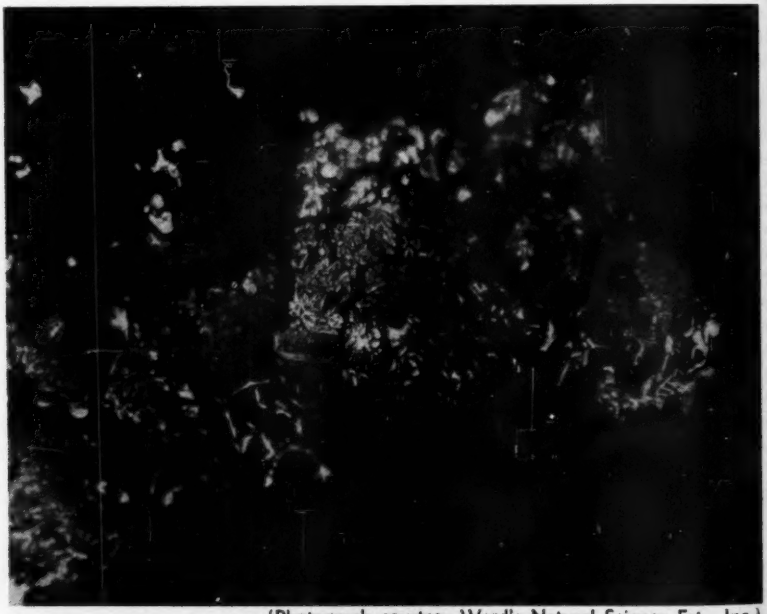
The element, uranium, was discovered by a German chemist, Klaproth, in 1789. Shortly afterwards, uranium salts were used in coloring glass and glazes. The greatest use of uranium in glass making did not take place, however, until the latter part of the 19th century and the first half of the present one.

The history of uranium glass in this country is closely related to the development of glass tableware. The large scale manufacture of glass became established in New England in 1787. A few years later, glass factories had spread as far west as Pittsburgh where the nearby coal fields provided plentiful and cheap fuel. The extensive waterways leading from Pittsburgh facilitated the development of new markets as time went on. The location of the early glass plants as you see, depended upon the nearby supplies of raw materials, fuel, and accessibility to markets.

From 1880 on, American pressed glass began to be preferred to other foreign makes throughout the world thus expanding this country's world markets. And domestically, the mass marketing schemes by such firms as Sears and Roebuck, Montgomery Ward's and others caused the manufacture of glassware to mushroom.

There are today over 2000 known patterns of domestic glassware each of which is available in a series of pieces. Of these patterns, about 3 dozen were produced in uranium glass. Many of these patterns were of only short duration as the early glass factories were made of wood, hence very vulnerable to fire, and once the factory and the molds were destroyed, capital was not always available for rebuilding.

While much of the early glass was clear crystal, colored glass became quite popular. One of the colors usually pro-



(Photograph courtesy Ward's Natural Science Est., Inc.)

Autoradiograph of dendritic, and skeletal uraninite. Ruggles Mine, near Grafton Center, New Hampshire. The presence of autunite in fractures of rock is indicated by faint cobwebby lines in left hand portion of picture. The autunite can be more readily distinguished by its fluorescence.

duced was the canary yellow, or "vaseline" glass which in Europe is called, "Anna" glass. Shortly after uranium became a strategic mineral at the beginning of World War I, the metal was removed from commercial glass manufacture and today none is being made.

In addition to tableware, yellow uranium glass has been used in filters (blue plus filters) in color photography and also in railroad lanterns where high transmission of light is desirable. While the yellow glass produced by the addition of uranium is the best known, curiously enough a wide range of other colors can be produced depending upon the form in which the uranium is added and the proportion of it and the other ingredients. Such colors as various shades of green, orange, red and black have been produced experimentally.

One of the most striking properties of the yellow or "vaseline," uranium glass is its fluorescence under ultra violet light. While the fluorescence is good under long wave ultra violet, it is best displayed under short wave lamps (maximum range around 2537 A.U.). Curiously enough, uranium glasses of other colors are either weakly fluorescent or non-fluorescent.

It is quite interesting to note at this point that there are about 120 species of uranium minerals yet only about a dozen of these will fluoresce and only two or three of them will fluoresce brilliantly.

Going further in the comparison, the minerals that do fluoresce, such as autunite are usually yellowish green in color while those that do not fluoresce have colors that range from sulfur yellow to orange, red brown and black. There are green uranium minerals and also green uranium glasses. Some of these will fluoresce, others will not.

A common field test for the presence of uranium in a mineral is to prepare a bead on platinum wire with such fluxes as salt of phosphorus, sodium fluoride or even an non fluorescing fluorite (CaF_2). The resulting bead, if prepared properly will fluoresce yellow-green whether the original mineral will or not. The chemist tells us that it is generally believed that the reason why yellow uranium glass will fluoresce is because the uranium is present in a uranyl group in which the two atoms of oxygen are so close to the uranium atom that the excess positive charge makes this (uranyl) group behave like a divalent cation. Other glasses that possess uranate or uranous arrangements tend to be non fluorescent. This mineral autunite possesses a uranyl grouping and hence is strongly fluorescent.

Many of you will recall the splendid pictorial color story in Life Magazine (Sept. 17, 1951). One page showed the effect of ultraviolet light on several fluorescent minerals. The colored light emitted by these minerals is caused by atomic changes within the minerals themselves. The electrons of all atoms are arranged in concentric orbits around the nucleus. The electrons in each orbit carry a specific amount of energy, which is higher in the outer orbits than in the inner ones. When an atom of uranium (in a uranyl grouping) is struck by an ultraviolet ray, one of its electrons will absorb a part of this ray's energy and will become too highly energized to remain in its orbit. It, therefore, jumps out leaving a space which is immediately filled by a second electron which jumps over from an outer orbit. In this movement, the second electron will lose energy which in this particular case will have the wavelength of visible yellow-green light.

Bibliography

Butterworth, L.M.A. The chemistry of glass coloration. Endeavor, July 1947.

Colbert, W. and Kreidl, N. J. Unusual colors produced by uranium in glasses. Jour. Opt. Soc. Am., Vol. 35, P 731, Nov. 1945.

De Ment, J. and Dake, H. C. Handbook of uranium Minerals 1948.

Frondel, C. Studies of uranium minerals (VIII): Sabugalite, an aluminum-autunite. Am. Min., Vol. 36, pp 671-679, 1951.

Frondel, J. W. and Fleischer, M. A Glossary of Uranium and Thorium-bearing Minerals. U. S. Geol. Surv. Circular 74, April 1951.

Kreidl, N. J. Recent studies in the fluorescence of glass. Jour. Opt. Soc. Am., Vol. 35, No. 4, April 1945

Smiley, W. D. and Weyl, W. A. Duration of afterglow of uranium-containing glass. Glass Science Bull., 6, p 1, 1947.

Van Nostrand, Inc., D. Scientific Encyclopedia, 1938.

THUNDER EGGS

By ROBERT D. ROOTS

3147 W. 39th Avenue, Denver 11, Colorado

While most of us do not care very much just what is a thunder egg, but are satisfied with its beauty and oddness, there are others who want to know why and so far there has been no clear answers. To say that they are rhyolite nodules that filled with dendrites, opal, agate and a few other things like pyrite and cinnabar does not explain what might be called the standard shape of the Priday Ranch thunder eggs, or the multiple centers found in other locations. In some places we notice the difference a few feet will make in the eggs. In others, all the eggs in a layer will be of the same type. A layer a few inches above or below will be altogether different. There is still a lot to learn about the habits of thunder eggs.

I have always liked thunder eggs and whenever I have time and am near a bed I try to get a few of them. The first that I saw were all from Southern California. There are several fine locations there for good eggs. It is just my luck that I have never had time to go to them and have had to rely on the "silver pick" to get specimens from the different beds.

Nevada Thunder Eggs

I think it was in 1939 that I, in trying to find a few specimens, passed by my first bed. I had left Battle Mountain, Nevada, for Izenhood to look for specimens of stream tin. While a number had been found there I put in the afternoon and morning and did not find a single one. (I traded for a 11 oz. specimen last Summer). Then I was told of the back road to the cinnabar mines There were two mines working. I started for the Rand Mine. Stopping a car to ask the way, I was lucky enough to run into the superintendent who told me to go ahead and where to look. So I went ahead and got my cinnabar in opalite for cutting. This was very hard and blue where exposed to the sun but a fine red in a light colored opalite. These mines are ten miles from Midas, Nevada. After spending the night at Midas, I started for Golconda, stopping a few miles out to look for water opal. I spent a few hours at this then stopped at a house about ten miles south of Midas to ask about it. The lady of the house had never heard of any being found near there but she showed me some baby thunder eggs. I wanted to go and get some but she said there was only a small spot of them and it would be very hard to find. I wonder how many have found them since. I went on to Golconda stopping only for a visit to the Getchel Gold Mine. This mine and mill is well worth a visit at any time. Ten miles east of Golconda at Iron Point there is a very interesting Argillite. It comes in circles and squares bounded by iron, and is known locally as "reading rock" from the figures that can be found in it.

Burns, Ore., Thunder Eggs

The next bed I found was at Burns, Oregon. I had heard of these and was shown some halves polished by Al Brown of Burns. So, being short of money, I wired for some and dug eggs while I waited. There are two beds of the Burns eggs. One near the little valley and another over and just under the crest of the hill. These last while there were some good eggs, many were hollow and what I was told was fibrous natrolite. Later I was told that the red in these eggs was cinnabar and it had been taken up as a quicksilver claim. Many of these eggs were of large size, 30 and 40 lbs were common. However as I did not care much about these eggs I worked on the lower bed. Here I found nothing but small green eggs from 1½ to 2½ inches all well shaped. Many of these had fine single centers but most were multiple centers of agate and opal. Two years ago while on my way to a show I stopped again and dug, I know not over 15 feet from my old place and found larger eggs but most of them were not solid. Not over five feet from us, two Californians

were digging and all they were getting were the solid dark eggs with multiple centers. If I dig again I am going to try to get more of the small green eggs.

Priday Ranch, Oregon

Then I headed for the Priday Ranch near Madras, Oregon. After paying at the house and talking to Mrs. Priday I went on up to the egg beds. There are many beds on the property. The blue, black, red and plume beds were all I had time to visit. The blue bed is the best for shape and never a dud. Then to the red bed. These are not so well shaped but are said to be better cutting material so I got some of them. Then some from the black bed and then I wanted to spend the rest of my time on the plume bed. This had been found about two years before and was pretty well dug up, about all there was left was to dig around the rims of the old holes. I dug in one place until afternoon and then gave one of my holes to a friend who dug out the only piece of plume found that day. I kept on working until 5 o'clock when I sat down and looked at my tools; then I put them in the car and went away. That evening I was camped with my friends and two men from Seattle when two men on horseback came by. They saw the fire and came in and told us to be careful with it. One of them was Mr. Priday. When I was talking to Mrs. Priday she had showed me an 1½ inch egg with a red fire opal center. So I asked Mr. Priday how far it was to where that egg had been found. He said it was in the far field, about 45 miles away. Since that time two new deposits of plume eggs have been found near the old beds. The beds are named from the colors found in the egg centers. I believe the eggs from the Priday blue bed are the best formed of all eggs. They have the true shape, the center is in the form of a cube with sunken sides and a small depression at the center of the bottom and a small dome at the center of the top. The sides are tight but the caps at top and bottom can be knocked off, tho this spoils them for specimens. I picked up a dozen of these centers that had weathered out just above the first plume bed. As a rule they have a ridge on the outside where the center comes close to the outside. By sawing on one ridge across to another it is possible to cut the center on a diagonal, giving agate over most of the sawed half.

Southern California Locality

I never had time to visit the Southern California beds tho I have eggs from most of them. The finest pair of thunder egg bookends that I ever saw were cut by George Ashley at that time in Ramona, California. These had a fine ocean scene with a cave in the background with a border around the edge. This was cut from one of the first of the Chuckawallas. It has always seemed to me that the eggs on top of the ground in the sun have a better color then buried eggs.

Baker Ranch, New Mexico

About two years ago I obtained from Ed Lindberg of Deming, New Mexico, about 50 lbs. of the Baker Ranch eggs. This deposit is about 25 miles south of Deming. These eggs are just about the worst looking that I know of on the outside. Also they run about 50% duds but they are well colored with more red then most eggs. What pleased me most was that I found a number of figures to add to my collection. A person cutting 300 or 400 eggs a year is lucky to find one or two figures. In that little bunch of eggs I found five.

Colorado Plume Beds

Several years ago I visited the Colorado plume beds with Ralph Dabney. This location was one of the most looked for locations and was found by very few. Yet it is wide open and even close to the town of Del Norte, Colorado. I believed what fooled most people was the fact that they were called Monte Vista eggs. This was because the chief cutter of these eggs lived in that town. I got one slab from this cutter, Mr. Love, that is one of the best that I have seen from Colorado. I believe the best of the Colorado plumes were as good as the best from Oregon. I do not know how large this egg bed is but a friend told me that he dug eggs over a length of a mile and a half. I do know that on the hill where

the plume is found I turned over stones for over three hundred feet and everyone was an egg. The sad part of this is that only a few have plume agate. The rest are full of grey agate with white edgings and sometimes bands. These duds are good only for paperweights and bookends. The eggs range in size from 5 to 10 inches. Near here they found one that weighed 400 lbs. This was not a plume egg but did have a little moss and patterns. When first found there were a number of plume eggs on the ground but now the eggs have long since gone under the surface and have to be shot out with powder. The plume eggs are very wasteful in cutting and must be cut the right way to get good slabs.

Ochoco, Ore., Thunder Eggs

Last fall in coming south from the show at Spokane, Washington, I came by way of John Day, Oregon. Going on to Prineville, Oregon, I stopped to see Mrs. Quent at the Ochoco Service station and got 100 lbs. of the Ochoco eggs. This is a newly found bed and when the new road to Prineville is finished it will be only six miles off the highway and Mrs. Quent said she would have a marker put up. I have not cut very many of these eggs but those I have cut run from fair to good and one was very good.

Thunder eggs have been found in many states. There is one place in Nevada that I want to have a look at. Was there years ago but did not know there were any eggs to be found. Idaho has a number of places. There are eggs near Oatman, Arizona, at least that is the location given me with a couple of poor eggs but where there are poor eggs there may be some better eggs. At any rate I hope to get in on a new bed of plume eggs some day.

SHOCKPROOFING THE PORTABLE GEIGER COUNTER

By RONALD L. IVES

Several commercial Geiger-Muller counters now on the market, and a large number of "home grown" Geiger counters, are so designed that the filter condenser of the G-M tube plate supply remains charged at a potential of 600 volts or more for some hours after the current is supposedly turned off at the switch.

As an unhappy result of this design defect, the user may get a severe shock when he attempts to change the filament battery of the rectifier tube. Although the power stored in the high-voltage filter circuit is not great, so that a fatal shock is practically impossible, nevertheless, a 1,000-volt "jolt" is most unpleasant.

Most fortunately, this minor design defect can be corrected at very small cost in time and labor, without increasing the weight or bulk of the equipment appreciably. In the conventional power supply circuit for the Geiger-Muller tube, the high voltage circuit (upper figure), from the rectifier tube filament to the G-M tube, has no appreciable leakage to ground, so that, once charged to a high voltage, it will remain charged for an appreciable time (up to several days, if the condenser Cs is of good quality). If both the ground (case of instrument) and any part of the rectifier filament circuit are touched by the operator when the condenser (Cc) is charged, the operator will furnish a leakage path of comparatively low resistance, and will sustain a severe shock.

If the rectifier filament switch (normally single pole, single throw) is replaced by one designed for double throw, and a suitable drain resistor (lower figure, RD) is connected from the second switch contact to ground, the filter circuit is drained of charge immediately the rectifier filament is turned off, and severe shock from that part of the circuit is impossible. Value of RD is not critical; any small resistor of from 5,000 to 20,000 ohms will be satisfactory.

Cost of this change is approximately $1.00 and fifteen minutes of working time if all new parts are purchased; similar modification in manufacture should cost an additional twenty cents. Weight increase in the equipment is about half an ounce. The drain resistor need not be larger than a 2" section of a lead pencil (some of very much smaller dimensions are commercially produced).

With the addition of this "charge dumper", it is possible to change the rectifier filament battery of a portable Geiger-Muller counter immediately after it is shut off without danger of shocks from the 1,000-volt circuit.

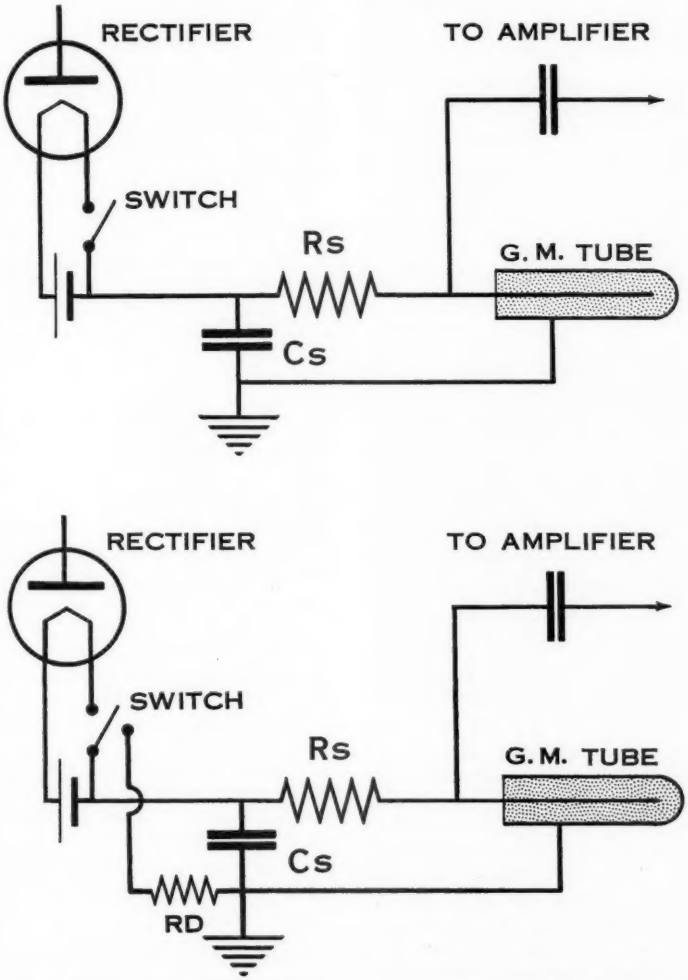


Fig. 1—Conventional high-voltage supply circuit for portable Geiger-Muller counters, with no arrangement for discharging the filter condenser (Cs, upper figure). When the filament switch is modified to connect a drain resistor across the filter condenser (lower figure), shocks from the high voltage circuit are no longer possible when the counter is turned off.

NOTES ON THE HISTORY OF CRYSTALLOGRAPHY

By DUNCAN STEWART, Jr.

Crystals are polyhedral solids bounded by plane faces which express an orderly internal arrangement of atoms and molecules. Crystals develop under special conditions only and in the mineral kingdom are the exception rather than the rule. They may result from solidification of a solution, a state of fusion, or a vapor.

George Bauer (1494-1555), called Agricola, and referred to as the "Father of Mineralogy", was a physician, who, for a time, lived in the mining district of Joachimsthal, Bohemia. He studied and described the minerals that he collected there, and was the first to give careful and critical descriptions of minerals, of their crystals, and their physical properties.

The vast majority of crystals are distorted. Growth conditions cause crystals to develop unsymmetrically. However, in a given mineral species, no matter what distorations are present, it can be demonstrated that the angles between similarly chosen adjacent or projected faces are constant for that species. This law of constancy of interfacial angles was introduced by Nicolaus Steno (1638-1687) in 1669.

Mauritius Antonius Cappeller's (1685-1769) *Prodromus Chrystallographiae, de Crystallis, improprie sic dictus commentarium,* published at Lucerne in 1723, was the first book to be devoted to crystallography; and in an essay on the crystal forms of calcspar, in 1773, Torbern Olof Bergman (1735-1784) made what might be as a first approximation to a definition of crystals. He said, "Crystals are bodies which, though destitute of organic structures, yet externally resemble geometrical figures more or less regular." The term crystal originally referred to the ice-like appearance of rock crystal quartz, but the angular shape of this substance, as well as that of garnet, beryl, and other minerals, seems to have been regarded by the ancients as an accidental and not an essential characteristic.

Although the beginnings of mineralogy lie in the remote past, the science as we know it today, can be said to have had practically its whole growth during the last 150 years. Of the some 1,500 mineral species that may now be considered as definitely established hardly more than 200 were known in the year 1800 and these were only partially described or understood.

It was not until 1809 that William Hyde Wollaston (1766- 1828) described the first form of a reflecting goniometer and thus made possible the beginnings of exact investigations of crystals. René Just Haüy (1743-1822), the "Father of Crystallography", in 1815, formulated the laws of crystal symmetry and showed that rational relations existed between the intercepts upon the axes of the different faces of a crystal. The distinctions between the different crystal groups were developed by Christian Samuel Weiss (1780-1856), who introduced the isometric, tetragonal, hexagonal, and orthorhombic systems in 1815, and Friedrich Mohs (1773-1839), who added the monoclinic and triclinic in 1822. The G.A.F.C. Naumann (1797-1873) system of crystal symbols was not proposed until 1829, while William Hallows Miller (1801-1880), in 1839, suggested a still simpler and more workable system of crystal symbols. In 1831, Johann Friedrick Christian Hessel (1796-1872), studying possible types of symmetry in solids bounded by plane faces, found that 32 such types included all geometrical forms that conform to Haüy's law of rational indices.

The first recorded observation of the phenomenon of double refraction of light was made by Erasmus Bartholinus (1625-1698), in 1669 on Iceland spar. The fact that doubly refracting minerals pol-

arize light by reflection was discovered by Stephen Lewis Malus (1775-1812), in 1805 and in 1813 David Brewster (1781-1868) first recognized the optical difference between uniaxial and biaxial minerals. Henry Clifton Sorby (1826-1908), in 1858, wrote a classic paper on the microscopical structure of crystals, and demonstrated the structure of rock-forming minerals with unprecedented accuracy.

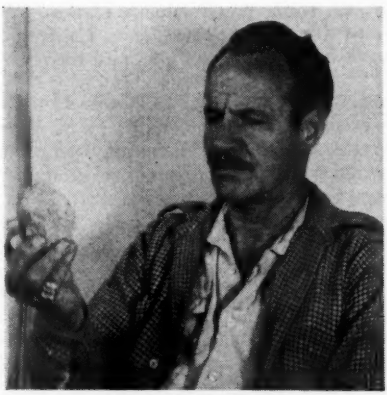
No longer is the study of crystals confined to their external features. Today, owing to the advances which have been made in the related sciences, especially physics and chemistry, the internal structure may be accurately determined. The greatest contributions came after the discovery of X-rays and especially after their nature had been determined. These rays were discovered by Wilhelm Konrad Röntgen (1845-1923) in 1895, but for nearly two decades their more exact nature remained in doubt. In 1912 Max von Laue (1879-)was the first to suggest visible proof of the space lattice of crystals. Aside from Laue, those who made fundamental contributions in this new field include William Henry Bragg (1862-1942), William Lawrence Bragg (1890-), and Ralph W. G. Wyckoff (1897-).

VOELKER BUYS HALF INTEREST IN AGATE MINES

Paul G. Voelker, formerly of Marquette, Michigan, has purchased an equal interest in Arizona Agate Mines with Charles E. Hill of Cave Creek, Arizona. Messrs. Hill and Voelker during the immediate past year have opened new veins of agate and further developed the properties in view of readying the grounds to facilitate the handling of large groups of agate hunters and collectors in quest of the many types of beautiful pieces readily found on these rich fields.

Voelker first became a rock-hound in the early twenties while cruising near the shores of Lake Superior, in the Porcupine Mountain area of Upper Michigan, a territory well known to early agate hunters.

Years spent in the far North with his world famous Alaskan Malemute dogs, coupled with many more spent exploring in the uncharted regions of Southern Mexico and Guatemala has sharpened his natural tastes for rocks and minerals. During the early spring of '51, while wandering thru the Bloody Basin section of Arizona, Voelker stumbled onto the claims of Charlie Hill and was so inspired at their extensive beauty, that after only a few days survey they came to an agreement and the new company is the result.



PAUL G. VOELKER

Ed Kraul Featured in Oil Magazine

Ed Kraul, prop. of New Mexico Minerals, 2719 E. Garfield, Albuquerque, N. Mex., was given a nice write-up in the April, 1952, ROCKY MOUNTAIN OIL REPORTER (P. O. Box 1528, Denver 1, Colo.).

Mr. Kraul's display rooms, workshop, and museum are the "Rock Hounds' Headquarters" of his area. Thousands of fine specimens which embrace rough and polished gem minerals, fluorescent minerals, radio-active minerals, crystals, and minerals in general are on display and attract visitors from near and far.

The write-up takes 3 pages and is illustrated with 6 photos (2 of Mr. Kraul).

MINERALOGICAL SOCIETY OF PENNSYLVANIA

By GERRY AND WILL SHULMAN
Co-chairmen Publicity Committee
113 Huntington Terrace, Newark 8, N. J.

The Mineralogical Society of Pennsylvania, a husky fast growing baby less than a year old, has made tremendous strides in the field of friendly mineralogy under the leadership of its spark plug president, Leonard J. Duersmith, Curator of Mineralogy at the Franklin & Marshall College Museum, Lancaster, Pa., and with the cooperation of its 1951 active members.

It has four types of membership; Senior, Junior (under 18); Associate (for out of state residents); and honorary (for achievements warranting special recognition as an authority in the field of earth sciences.) Both Peter Zodac, editor and publisher of ROCKS and MINERALS of Peekskill, New York, and Leland Quick, editor and publisher of the LAPIDARY JOURNAL, Palm Desert, California, have been appointed honorary members.

Officers

Officers of the M. S. P. are: Leonard Duersmith, President; Floyd Faux, Vice-President; Howard Hamilton, Recording Secretary; Helen M. Bauhof, Corresponding Secretary; Walter Bancroft, Treasurer; and Russell A. Bell, Lapidary Secretary.

Committee Chairmen

Membership and Nomination, Harold Evans; auditing, Howard Danner; field trip, Otto Bauhof; advisor to Junior membership, James Irvine; registrar, Mrs. Harry Ranck; lapidary committee, Mrs. Gene Belz.

Emblem

The motto and design of the emblem were fashioned by Harry Ranck, Lancaster, Pa. Permission was granted by the University of Chicago press for use of our motto, "Mente et Malleo"—Mind and Hammer, which is found in DOWN to EARTH by Croneis and Krumbein. The gold and blue keystone emblem is an attractive and beautiful job.

Car emblems are now available. They are reflecting decals in the Society's color of gold and blue. The adhesive backing is for outside mounting and they are weatherproof. The price is $1.00.

The Keystone Newsletter

Published monthly by M. S. P. in the interest of Pennsylvania earth sciences, the KEYSTONE NEWSLETTER is edited and mimeographed by Helen and Otto Bauhof. This friendly sheet gives information concerning meetings, field trips, items of mineralogical interest and activities of members. Maps with directions and collecting notes are a special feature of this little paper.

Progress and Accomplishments

The Evansburg Explorer Scouts, under the direction of James Irvine, Collegeville, took second place in the Scouting Fair at Devon, Pa., with their mineral exhibit.

W. Harold Tomlinson, Springfield, presented a paper before the 32nd Annual Meeting of the Mineralogical Society of America at Detroit, Michigan; "Relation of Micro-Pegmatite to Pegmatite at Sage Harbor, Pa.

Richard M. Foose and Jacob Freidman, Lancaster, Pa., attended the 64th Annual Meeting of the Geological Society of America at Detroit, Michigan. Dr. Foose presented a paper on the "Hershey Water Problem."

The Society has gained the recognition of the Bureau of Topographic and Geologic Survey of the Commonwealth of Pennsylvania and we have the full indorsement and cooperation of this Bureau. As far as we can determine, our Society is the only group of its type, that enjoys this unique distinction of being recognized by its own State.

We enjoy the privilege of acting as an authority for information regarding minerals and mineral localities in Pennsylvania. Inquiries concerning these subjects have been channeled to our Society for answering by the Bureau of Topographic and Geologic Survey of our State.

We have been called upon, by the Commonwealth of Pennsylvania, to prepare a pamphlet on "Mineral Collecting as a Hobby." This publication is to be issued

by the Department of Internal Affairs. The work on this pamphlet is now well under way, with various members of our Society contributing toward its completion.

We can be reasonably certain that it is our interest that inspired the present exhibit of Pennsylvania minerals and geology that is now on display in the Pennsylvania State Museum at Harrisburg. We have been assured by the officials of the Museum that this display will be improved and enlarged in the future.

Arrangements have been made for our Society's affiliation with the Pennsylvania Academy of Science. This step is considered essential in keeping with our policy of supporting kindred organizations of our State.

Bi-Annual Meeting 1951

At the Bi-Annual meeting of the Soiety, on November 11th, 1951, certain important and necessary changes were made in our By-Laws. The most important was the addition of a section to include young people below the age of eighteen. This was deemed necessary to encourage the younger folks in the earth sciences. The second important change was that of changing the section affecting the Officers of the Society. It was moved, seconded and passed that the offices of Corresponding Secretary, Recording Secretary and Treasurer shall be permanent, with certain restrictions. This was thought necessary because of the confusion that would result in the possible yearly change that could take place.

Lapidary Meeting

The first meeting of the Lapidary Committee of the M. S. P., was held on January 20th, at the home of Mrs. Charles Belz, Lansdale, Pa. Twenty-two people were in attendance.

Primarily the group would like to study and become proficient in the polishing of gem stones and in the design and construction of jewelry. By being associated with M. S. P., members of the group will be able to study and appreciate the structure of crystals and thus will be scientists as well as lapidaries.

Mr. Bell offered to polish a cabochon of material to be found at the locality of the field trips if a member, having a supply of cutting material, would forward him enough to finish a polished stone.

Members who displayed their work were: Harry C. Kofke, faceted stones and cabochons, polished flats, and Carnelian nodules; Ellen Pietsch, silver crab pin set with Virginia Unakite; Russel A. Bell, cabochons and faceted stones; Benj. Birchall, Rockhound society pin mounted with Pa. Williamsite; Gene Belz, gem stone buttons of each state and cabochons.

A guest speaker, Forrest Lenker, demonstrated the technique of cutting a cabochon.

Members were encouraged to visit each others homes, so that some who have never done any of this work would be able to see how some of the more advanced members have set up their workshops.

Following the meeting the hostess and Chairman, Mrs. Chas. Belz served tea and a social time followed.

No extra dues are required to join the lapidary group.

Russell A. Bell. Sec'y.

Field Trips

The M. S. P. wishes to express their gratitude and congratulations to their affiliate the Mineralogical Society of Nutley, New Jersey, for their help in making the tri-state trip to Franklin a success: They put up road markers, organized the parking, arranged a spectacular mineral exhibit of local specimens and acted as guides. They answered a million questions and did everything to make a fine field trip. Crystals to the parents of this fine Junior group.

A vote of thanks goes to W. F. Evans, General Superintendent and William H. Callahan, Manager, New Jersey Zinc Co., for their grand cooperation with the Franklin, New Jersey trip.

S. H. Cathcart, Director of the Bureau of Geologic and Topographic Survey, Harrisburg, Pa., has expressed great interest and approval in the project of the M. S. P., to list and take inventory of mineral localities in the Commonwealth.

His department will assist and sponsor the plan, a direct scientific outgrowth of our field trips.

On field trips M. S. P. supplies friendship, minerals, water, first aid, showcase of native minerals, information, baby sitters, dog walkers, road maps, food and fun.

Field trips to date include: May 20, 1951, Wood's Chrome Mine, Lancaster, Pa.; July 8th, French Creek Mines, Chester County, Pa.; Oct. 21st, Peter Zodac Day, Inter-State field trip to Franklin, N. J.; Nov. 25th, Wood's Chrome Mine; Dec. 16th, State Museum, Harrisburg, Pa.; March 23rd, 1952, Joint Field trip with Philadelphia Grotto of the National Speleological Society to Redington Cave and Perkiomenville, Pa.; and April 26th, G. & W. H. Corson Lime Manufacturing Plant and Quarry, Plymouth Meeting, Pa.

Future Plans

Our future plans include the purchasing of lapel buttons or pins to be sold to the members at cost; the publication of semitechnical papers by members of our Society; affiliation with the Field Conference of Pennsylvania Geologists; participation in Hobby shows, local and county fairs.

YOUR FLUORESCENT CHRISTMAS TREE

By MRS. PAUL A. BENS

1324 So. First Street, Aberdeen, South Dakota

To exude the Christmas Spirit the whole year long, one must be mindful of the trappings of Christmas and what could be more pleasant for a Rockhound than to plan a fluorescent Christmas tree? Now is not too early to begin the planning for the ingredients which go into the making of this treat must be collected from time to time if one would enjoy it to the fullest.

The tree itself — whether natural or artificial — will fluoresce a lovely red, with a black bulb, as will the icicles and tinsel.

Most of the ornaments either change their color or the color is intensified. After testing and discarding those which do not fluoresce, others may be bought with careful consideration bearing this new purpose in mind. This will assure a lovely tree at all times.

Or new ornaments can be made. Receiving a deep yellow envelope, I tested it under the black bulb and it simply glowed a lovely red. Now, under the black bulb, we have a beautiful poinsettia with an orange center (sphalerite) with green stems and leaves and a yellow daisy with a dark center and green leaves in the daytime. The poinsettia was mounted on cardboard.

The chips of agate, selenite, opal, sphalerite and others which ordinarily would be thrown away without a thought, may be pounded up into "glitter", when mixed together, which will make those acetate stars and balls—sold at the dime stores for five cents each—glow with beauty. The stars or globes are coated with glue and the glitter sprinkled on. Designs, too, may easily be made with these "sands". In this, one would be aided if the fluorescent paints or crayons are used.

Coat a rubber ball, with string attached, with glue and then cover with putty. Immediately press bits of fluorescent minerals in the putty. If desired, sprinkle glitter over the exposed putty or let the putty dry and then paint it.

The lower branches of our tree were draped with paper chains made of the not too easily seen (in the daytime) silver bar in the silver strip edging the wrappers of Brach's Mint Bars (fluorescent green) and glossy red strips cut from magazine covers (fluoresces deeper red).

Some white papers fluoresce blue; white yarn becomes a lovely blue; artificial cherries are a pleasing yellow; many ribbons change color as does some rayon cloth; cones sprinkled with glitter add charm—but why should I spoil YOUR fun?

RESIDUAL MINERALS IN KEWEENAWAN CONGLOMERATES

By K. SPIROFF
Department of Geological Engineering, Michigan College of Mining & Technology
Houghton, Michigan

Introduction

There is a trend toward the study of the heavy accessory minerals by means of concentration of the heavy fractions in order to demonstrate the parent rock from which the heavy minerals of various sedimentary deposits were derived. In this investigation the reverse procedure was tried; that is, an attempt was made to see if there are any accessory minerals present that could be used as a means of correlating the different numbered Keweenawan conglomerates.

Historical

In the Keweenawan series of the Michigan Copper Country occur the so-called felsite conglomerates intercalated among lava flows. These conglomerates are very important for several reasons. Economically, they have yielded about one-half of the total copper product of the district. Stratigraphically, they are the only certain horizon markers. Their importance is demonstrated by the usual custom of the amygdaloidal mine operators; this is, that when the operators lose the ore or are not sure where they are stratigraphically they cross-cut to a conglomerate. These conglomerates vary in thickness from a few inches (being then only a sand seam) to 200 feet; in the thick beds the pebbles are quite coarse. The boulders are well-rounded, consisting of quartz felsites to trachytes, with a red color (due to red feldspars and primary hematite) predominating in all. The absence of ferromagnesian minerals is conspicuous.

As far as it can be ascertained a predominance of a certain type of pebble does not appear either along the strike or dip. Neither is there a recognizable segregation of one type of rock pebbles in the different conglomerates. A fact worthy of note is that the conglomerates appear clean and fresh, and are well-cemented. Even the sands among the boulders appear to be fresh. The grains are mainly feldspars, many being angular in shape. Where the strata thins out there are typical arkoses. These conglomerates differ from typical conglomerates elsewhere in the absence of fine silt and the lack of weathering of the constituents.

As a generalization, the above arkosic type of conglomerates with unweathered and often angular grains is typical of the Pre-Cambrian (not merely the Keweenawan). Similar rocks are found in later formations, wherever conditions favor disintegration and rapid accumulation. The significance is that the character reflects certain conditions in this case and it is of interest in that it shows the conditions existing during the Keweenawan.

The origin of these conglomerates is allied with the accumulation of the Keweenawan series, a subject concerning which various opinions have been expressed.

According to one view — "Most of the flows followed one another so closely that there is no evidence of any erosion or normal weathering between them. Occasionally, however, there was an interval long enough to allow the surface to become broken up and to permit the finer sand thus produced to sift in between the larger fragments, forming what is known as the scoriaceous amygdaloid. If the interval was long enough and other conditions were favorable, felsitic debris was carried in and deposited on the weathered surface forming a felsite conglomerate."[1]

Along the same trend another says: "It seems probable that the conglomerate pebbles were not of immediate local derivation but came from long-lived uplands composed mainly of felsite and quartz porphyry and that the debris from these uplands together with a small proportion of other material from different sources was spread intermittently on the adjacent piedmont plains occupied mainly by the basic flows."[2] Furthermore, "Lane and

others have suggested that certain extensive flows of felsite poured out on top of the basalt flows immediately succumbed to erosion thus forming a nearby contemporaneous conglomerates."[3]

Along the same line: "At various intervals the activity was more violent, and the ejected fragments were spread out as layers of gravel and sand over the surrounding lava flows."[4]

Another view is: "Several successive exposures of the same felsite conglomerate have been given different names or numbers. For example, conglomerates designated as No. 1, No. 2, and No. 3 are the same conglomerate dislocated and repeated for considerable distances along the strike by longitudinal thrust faults. Even conglomerate No. 8 and the Allouez conglomerate (No. 15) have long been considered to be the same conglomerate by A. E. Seaman, L. L. Hubbard and others. This would indicate a tremendous amount of repetition."[5]

In view of these controversial issues would seem that if the conglomerates were beach gravels from cliffs nearby, then the same heavy accessory minerals should predominate throughout, although the proportions may be different. However, if the conglomerates were flood debris from ejected fragments of different volcanic intervals, then there may be some minerals that will unravel the story.

The present investigation was undertaken in the hope that the distribution of the heavy minerals would throw further light upon the origin and structure of these Keweenawan sediments.

This paper embodies the results of a study of the heavy accessories in some of the conglomerates.

Technique Employed

Sampling: As far as possible, samples from different conglomerates were taken which contained pebbles of the same size and about the same percentage of matrix.

Crushing: The sample was crushed through 100 mesh in a jaw, gyratory and cone-crusher series, care being taken to clean each machine before the operation. The crushed product was quartered until about 100 grams remained.

Settling: 100 grams of the sample were weighed with an accuracy of 0.0005 grams. This material was washed with water in a large evaporating dish until the water was clean after the sample had been stirred and allowed to settle for one minute. The residue, usually about 35 grams, was dried and weighed. It was then put into a separator funnel containing tetrabromethane (Gr. = 2.97) and allowed to settle for about 15 hours. The heavy minerals were tapped off, washed with acetone, dried and weighed.

Magnetic Separation: Magnetic separation was attempted by means of a small electro-magnet, but the results were unsatisfactory; only one separation could be made, and minerals such as iron-bearing hornblende were not affected. Better results were obtained by removing the highly magnetic particles with electro-magnet, and then rubbing a strong horseshoe magnet through the remaining portion. This successfully removed the less magnetic grains. By repeating this process several times, only a very small percentage of the non-magnetic particles was carried over.

Minerals Found in the Heavy Fraction: Nearly fifty per cent of the heavy minerals were not identified because of the limonite included in them. This limonite occurs as minute flakes and was not entirely removed by chemical treatment. A considerable amount of quartz and feldspar whose gravity had been raised by the limonitic material appears with the heavy minerals. The following minerals were identified:

Table 1

	Panned from— to— (gms.)	Weight Heavies 2.97	Grains Counted	APATITE		ZIRCON			EPIDOTE
				Sub-hedral	Rounded		Included	Zoned	
No. 3 Baltic Near Ball Park	100-52.84	.37	437	28.0% 124	3.4% 15	55.0% 241	7.7% 34	2.7% 12	2.2% 10
No. 8 Hurontown Matrix only	100-70-52	14.8	521	85.2% 444	11.5% 60	2.5% 13	.8% 4		
No. 8 Hurontown Pebbles only	100-59.67	6.52	441	58.0% 255	7.5% 33	26.5% 117	5.0% 22	2.9% 13	.2% 1
No. 12 Kearsarge From Centennial	100-57.22	.64	482	6.4% 31	1.8% 9	68.0% 330	11.0% 53	11.0% 52	.6% 3
No. 15 Allouez from Allouez	100-45.54	3.97	449	67.0% 295	3.7% 17	24.7% 109	4.7% 21	1.6% 7	

Epidote—Usually in angular grains.
Apatite—Two types are found: 1) Well-rounded grains, never limonite-stained. 2) Euhedral crystals often clouded with limonite.
Hornblende—Angular—seldom limonite-stained.
Zircon—Euhedral crystals, prism and pyramid faces, sharply defined. Seldom limonite-stained. Some grains show distinct zoning while others show colorless inclusions.
Magnetite—Euhedral crystals.
Opaque Minerals—Feebly magnetic—probably an intergrowth of magnetite and ilmenite.

Table I represents the results of the grain counts. Only zircon, apatite and epidote are recorded.

Conclusions

Although the work was not comprehensive it does show that the Keweenawan conglomerates are of about the same heavy mineral composition and therefore the heavy minerals cannot be used to differentiate between them.

References

1. Broderick, T. M., XVI International Geol. Congress Guide Book No. 27, Lake Superior Region, p 36.
2. Butler, B. S., and Burbank, W. S., et al., The Copper Deposits of Michigan: U.S.G.S. Prof. Paper no. 144, p 19, 1929.
3. Lane, A. C., The Keweenawan Series of Michigan: Mich. Geol. Sur., Pub. 6 (Geol. Ser. no. 4), p 753, 1908.
4. Spiroff, K., A Mineralogical Trip Through The Michigan Copper Country: Rocks and Minerals. Vol. 13, p 133, May, 1938.
5. Seamen, W. A., The Keweenawan: Mich. Acad. of Sc., Arts and Letters (?).

A PLEA FOR DEFINITE INFORMATION!

Editor R & M:

I have been contemplating writing my complaint regarding most rock magazines for almost two years. The letter "A subscriber Criticises Rocks and Minerals", in the March-April, 1952, issue finally made up my mind for me.

My complaint is — so much indefinite and misleading information. We who depend on our vacations to get in a little rock hunting just can't spend all summer hunting for some spot about which we have read and about which nothing definite was given, only general locality. If these spots, as written up, were logged to the tenth of a mile and also all crossroads and other land marks were given, then we who are on our vacations might find a few rocks.

My wife and I haven't been very fortunate in finding good hunting localities as written up. Local inquiry, hard driving, camping out and perseverance has been our main stay. That takes time, though.

Two years ago we headed for the Pacific coast. On our list of 'musts' was a 'geologic island' out of Buhl, Idaho; enhydros at Kalama, Washington and staurolite (up to 5 inches) south of Avery, Idaho.

By perserverance we finally found the geologic island and were greatly disappointed. Instead of good fossils, teeth galore and beautiful petrified wood, we found plenty of bone fragments and tooth fragments and one little insignificant piece of wood. Directions given were also wrong.

At Kalama, Washington, we hunted for hours and inquired of a native who had lived there thirty years. There are no *"towering cliffs* east of Kalama, below which thousands of small enhydros may be found." Steep hills yes, and I presume we found the right place as it was on the creek named, but enhydros—Ha! A few pieces of worthless chalcedony weathered out of the basalt and a few — a very few—of which may have at one time contained water. All we found were dry and even though they had contained water, it couldn't have been determined due to the opaqueness of the milky chalcedony. If that is what enhydros are, I wouldn't walk across the street to accept a train load as a present.

We found rocks, yes, but not due to the indefinite 'write ups' in the rock magazines. On our way east again we went thru the Coer'd'Alene mining district in northern Idaho but we never took time out to drive over to Avery. Staurolite up to five inches "south of Avery?" Well there is a big, rough country "south of Avery."

We just kept driving on to the Yellowstone River in Montana where we knew we could find rocks—and we did.

So you can see what I mean. Give us something definite and factual. It would help us vacationers immensely and be very greatly appreciated.

Hollis J. Gordon
411 E. Kansas St.
Independence, Mo.

April 25, 1952

MINERAL MAKE-UP

Face Painting by the Seri Indians

By JOEL MARTIN HALPERN

In preparation for the day ahead, the young woman brushes back her long dark hair and takes out her cylindrical tube of make-up. She has her choice of several colors — what shade should she use today?

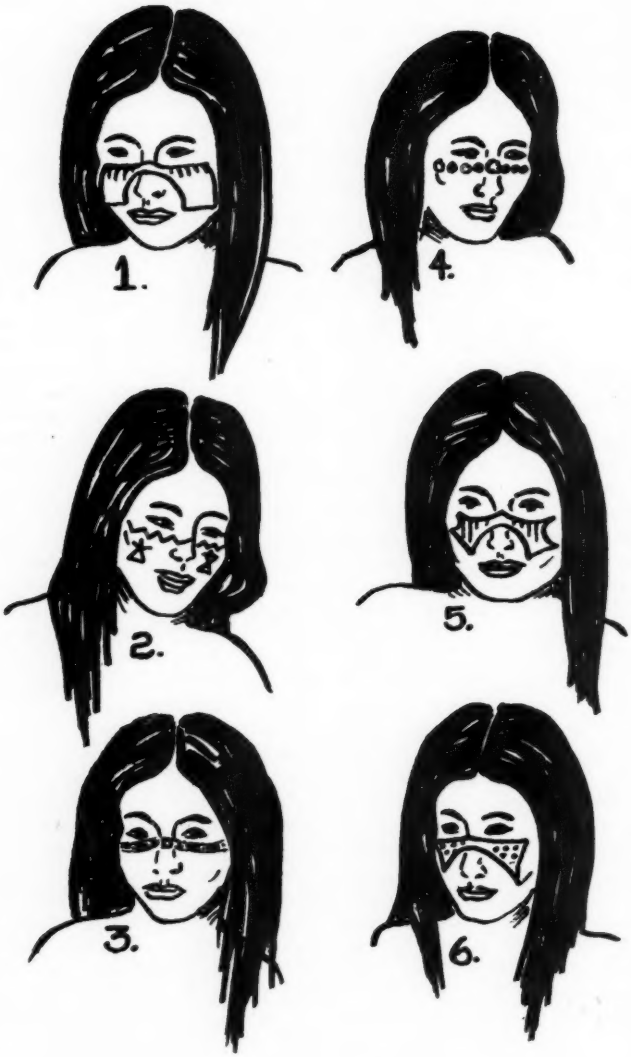
No, she's not a model employed by a make-up firm — she's a young Seri Indian maiden about to proceed with her customary beauty rites. The make-up kit she uses is a small hollow cane wrapped with bits of frayed woven cloth; her colors are reds, blues, grays and whites, blended from iron oxides, dumortierite and gypsum.

The Seri, a distinctive tribe with their own language, numbered several thousand about 250 years ago. At the beginning of this century only some 350 remained. They inhabited Tiburon Island in the Gulf of California and a small area in the adjacent mainland near Sonora, northwestern Mexico. Their elaborate make-up techniques were especially interesting in view of the fact that the rest of their culture was so simple. The region in which they lived is largely a barren sandy waste, with drinking water found in only a very few places. Their houses were flimsy bowers of dried cactus and desert shrubbery, with the tops partially covered with sponges and turtle shells. Their clothing consisted of a coarse kilt of native vegetable fibers extending from the waist to the knees. They also wore necklaces of human hair and snake skins. Their food, eaten raw, was chiefly turtles, fish and mollusks, with cactus fruits and mesquite beans in the inland area.

It is surprising, then, that against so unpretentious a way of life such a remarkable facial decoration custom was developed. The most important mineral coloring agent, ochre (iron oxide, probably from a form of hematite), yielded various shades of red, pink and terra-cotta. White was afforded by gypsum while the source of a blue color was dumortierite. It is uncertain as to where the Seri obtained their minerals. Neither gypsum nor the iron-bearing minerals are very uncommon; the dumortierite, however, is relatively rare. Named after a French paleontologist, dumortierite has been found in the United States near New York City, in San Diego County, California and in Yuma County, Arizona. It is possible that this mineral was obtained through trade or was mined at the California and Arizona sites by expeditions of Seri Indians. The Yuma County mine is supposed to yield the mineral in some quantity, in the form of dense fibers embedded in quartz, to which it imparts the blue color. Essentially a basic aluminum boro-silicate, one formula of the mineral is $(SiO_4)_3\ Al\ (AlO)_7\ (BO)H$.

The dumortierite was usually used in the form of a thin rod, made by pulverizing the mineral and kneading it with clay. Iron oxides were commonly obtained as lumps of clay which were then reduced to a powder using small stones or by rubbing in a sea shell with the fingers. Wetting and rubbing two pieces together was the method used by the Seri to grind up the gypsum. All the pigments thus obtained were carried in a cane container (see illustration).

The colors were applied with a human-hair brush made especially for that purpose. The face-painting was almost entirely confined to females although infant males were sometimes decorated. As might be expected, the older women were often careless in applying the designs while young girls made elaborate patterns and used great care. The time consumed in applying the face-paint varied from half an hour to three hours. Each female applied her own make-up free-hand. Mirrors, of course, were unknown, and the only time they could see what they were doing was by observing their reflection in a shallow pottery bowl of water. Every few days fresh paint was used. The designs were particularly important for ceremonious occasions. Her-



1. **White field with gray lines.**
2. **White line design.**
3. **Red center with alternating blue and white pattern.**
4. **Red center with alternating blue and white dots.**
5. **Red outline design.**
6. **Five blue dots on each red field.**

(Sketched from life photographs, Plate XXVI, Seventeenth Annual Report, American Bureau of Ethnology, 1898.)

editary in the female line, the patterns were representative of the clan organization and are thought to be a symbolic interpretation of various zoölogical dieties. The accompanying sketches indicate that the most common pattern was a winged design extending across the bridge of the nose and widening over the cheeks. The pattern was either left in outline or was filled in with a contrasting color and embellished with small symbolic lines or dots. Another widely used decoration was a continuous strip of design from cheek-bone to cheek-bone; the colors alternated and the design was symmetrical on each side of the face with a larger central decoration on the bridge of the nose. An exception to this is shown in figure 2, where a white zig-zag runs across the width of the face with a different symbolic outline design on each cheek.

The mineral paints were preserved very carefully and were carried by the women even on their longest journeys. The cane cylinders, the sea shells and the pigments themselves were often considered sacred and were buried with the dead. It is doubtful if any rockhound ever valued his specimens as highly as the Seri Indians prized their little mineral collection.

Acknowledgments

McGee, W. J. *The Seri* (Seventeenth Annual Report of the Bureau of American *Ethnology, 1895-1896,* Part I), Washington, 1898. Illustrations by Barbara Kerewsky.

Container for mineral paints. A cane cylinder wrapped with bits of ragged woven cloth. The fabric is light brown with a black design woven into it.

(After Plate XXVII, Seventeenth Annual Report, Bureau of American Ethnology, 1898.)

A Pleasure to be a Subscriber!

Editor R & M:

I can't tell you how much of a pleasure it is for me to be a subscriber for R & M. I have sent for your magazine on the recommendation of two of my friends. The reason being all three of us are Amateur Mineralogists. Before subscribing. I had always read with avid interest the articles in your magazine by borrowing my friends' issues. I enjoyed every issue very much, so much in fact that here is my subscription.

Jonathan Kapstein
April 1. 1952. Providence, R. I.

Likes Advertisers Index!

Editor R & M:

I received my first copy of R & M yesterday and think it is a very fine magazine, indeed. I have not of course had time to read all of it, but from what I have read I think it is very informative and interesting. I like the index to the advertisers. It is so much easier and quicker to use than having to go through the whole magazine when looking for a dealer's name.

Mrs. W. H. Ford
Feb. 26, 1952. Saskatoon, Sask., Canada

Brimful of Information!

Editor R & M:

I have read with great interest the January-February, 1952, issue of ROCKS AND MINERALS and now am looking forward to future issues. This is a fine magazine and it is just brimful of the kind of information a person interested in rocks and minerals can read both for instruction and pleasure.

Mrs. Ralph Brown
March 4, 1952. Jackson Heights, N. Y.

Missed R & M!

Editor R & M:

During an unfortunate stay in Canada last year, I inadvertently permitted my ROCKS AND MINERALS subscription to lapse. The enclosed money order for $6.00 will remove the possibility of a recurrance of such neglect for the next two years, at least.

I've really missed ROCKS AND MINERALS; in the past, it has proved to be an invaluable source of information about New England mineral occurrences, an excellent means of keeping in touch with other collectors, and a truly interesting magazine of constance excellence.

Robert G. Wolfson
March 9, 1952. Cambridge, Mass.

WORLD NEWS ON MINERAL OCCURRENCES

Items on new finds wanted. Please send them in.

Abbreviations: xl—crystal xled—crystallized xline—crystalline

ALABAMA — Around North Birmingham, Jefferson Co., Ala., interesting cherty halloysite has been found in dolomitic limestone.

ARIZONA — A most interesting specimen of aragonite crystals (encrusted with white drusy quartz) has been received from R. A. Richards, Box 44, Morristown, Ariz. His letter dated Jan. 14, 1952, reads as follows:

"I am sending a small specimen of aragonite crystals. There are quite a large number of the smaller size clusters; larger clusters rather rare. I, myself, collected them from Central Arizona.

"Have a limited number of these aragonite crystals available to the collectors, if any are interested.

"I have found Arizona to be a "rockhound's paradise" in the 16 years that I have been here, especially Central, Southwestern, and Southeastern parts of the State.

"I like your World News on Mineral Occurrences very much."

A 2nd letter dated Feb. 18, 1952, gives more information on the above:

"Your note of Feb. 11th at hand. Thanks for your interest in this matter. Yes, I can give you the location of the aragonite crystals.

"The locality is in a very rough country, definitely no place for an amateur—it can be downright deadly, I assure you. No town very close; there are some quite large areas in Arizona that hold no towns within their boundaries. I believe the closest town would be Peoria (in Maricopa Co.) The clusters are near the junction of Aqua Fria River with Lake Pleasant. I have a fair supply of these clusters if anyone should be interested in them. They vary in size from ½" diam. to as much as 3" — larger sizes are scarce. The smaller ones are quite good, in some ways more attractive than the large ones."

A 3rd letter dated May 5, 1952 reads: "Just got a letter from Prof. Richard Pearl (Geol. Dept., Colorado College), regarding the specimen I sent you. He write: "Specimens sent me are aggregates of aragonite crystals, pseudo-hexagal form — these are unusually attractive and interesting."

"Have quite a number of these on hand if anyone should be interested. Several dozen good ones, at least. May be able to unearth more, later, I hope.

"Will be glad to send along a sample now and then for your "World News." I like this section of the magazine.

"Have you had anything on 'fire' quartz? Arizona has some most excellent 'fire' chalcedony."

We would be delighted to receive donations of new or interesting finds. We never heard of "fire" quartz in Arizona, so this for one thing would be new to us.

ARKANSAS — We are indebted to Byron C. Marshall, Prop., Ozark Biological Laboratories, 204 Central Ave., Hot Springs National Park, Ark., for the following most interesting items taken from his letter of April 10, 1952:

"Last September the 9th, 1951, I made a trip to the Diamond Mines, at (or near) Murfreesboro, Pike County, Arkansas. At the mines, I was kindly given permission to collect certain specimens. One was a chalcedonic slab, about 12 x 19 x 3½", of which I send you a sample No. 513. This is full of vugs, containing small quartz crystals. Also, I picked up a number of water-worn pebbles of quartz, some of a nearly novaculite texture, some quite chalcedonic, jasper, basanite, one No. 501, might be even called reddish carnelian, conglomerate, No. 514 an oolitic, chalcedonic water-worn piece, and No. 515, a conglomerate with lots of limonite, iron-oxide, mass. A number of samples of these I am forwarding to you today by separate mail package, and you

are welcome to them for your collection. They all came right out of the main peridotite "pipe" and are of interest, though they are of course a more recent geological intrusive. It seems to me that I somewhere read a statement by you that you had obtained a collection of similar material from the mines proper, but though I have looked I can not find this reference and I may be mistaken in this.

"The main reason I am writing this and sending you this shipment is that I just received the identification of a light greenish mineral which I thought you might want to record in your Arkansas part of WORLD NEWS. When at the mines, I also bought a large vial of reddish garnets, and what I thought was probably greenish garnets, but a letter from the United States National Museum, Washington, D. C., gives this information: 'The small lot of specimens you submitted for identification were referred to Dr. George Switzer of this department, whose report follows:

'The material submitted is a mixture of fragments of garnet (red) and enstatite (green). Enstatite, a member of the pyroxene group, is a major constituent of peridotite, while garnet is also abundant in the diamond-bearing peridotite from the Mufreesboro, Arkansas area.'

"I am also enclosing samples of this Enstatite, which so far as I can find in what literature I have available, is a new record for Arkansas. Also, am sending samples of the garnet fragments, which are probably Pyrope, though Dr. Switzer does not state.

"Am also enclosing some literature and pictures which will explain how the mines are now being used as a tourist attraction, and they seem to be getting very good crowds. I understand that several small diamonds have been found by various visitors, and have seen several reports regarding these findings in local Arkansas papers.

"Should you not have any of the blue, green, greenish-gray and black (hard bank) varieties of the peridotite in your collection, I shall be most happy to send you samples gratis.

"COLLIER'S for August 25, 1951, had a nearly three page article on the Arkansas Diamond Mine, with three pictures, and is quite true to facts as I have been to the mines several times and heard these stories several times pretty much as they are given in this article."

CALIFORNIA — A small but most beautiful group of pinkish halite xls has been donated by Sol Shalevetz, 220 W. 5th St., Los Angeles 13, Calif. The localiy for the specimen is Searles Lake in San Bernardino Co., Calif.

Gypsum (selenite) as small colorless xls on dark green serpentine, have been found in Oakland, Alameda Co., Calif., by Verne Simons, 3641 So. Nebraska St., Marion, Ind., when he visited the State some few months ago.

COLORADO—Torbernite, as greenish incrustations, has been found in the St. Kevin mining district, 8 miles west of Leadville, Lake Co., Colo.

CONNECTICUT—Dark brown sharp xls of staurolite in mica schist occur at Stafford, Tolland Co., Conn.

DELAWARE — Limonite deposits occur at Burtons Branch, 1 mile west of Burton, Sussex Co., Del.

FLORIDA—George C. Olmsted, 1129 James Blvd., Signal Mountain, Tenn., who has been spending a few weeks in Florida, reports finding petrified Manatee bones and other fossils around Sarasota, Sarasota Co., Fla. An article covering his finds is in preparation and will be printed in a future issue of R & M.

GEORGIA — Sometime ago we received a beautiful specimen of greenish, foliated talc that was sent in by Owen Hoffman, 230 Garland Ave., Washington, Ga. The locality for the talc was Georgia Marble Co. Verde Antique Quarry, 2 miles s/w of Holly Springs, Cherokee Co., Ga.

IDAHO — Blue and green sapphires have been found in gravel deposits near Pierce, Clearwater Co., Idaho.

ILLINOIS — Groups of small rock xls have been found in the fluorite mines at Cave-in-Rock, Hardin Co., Ill.

INDIANA — Deep red grains of garnet (almandite) have been found in gneiss pebbles at Lafayette, Tippecanoe Co., Ind.

IOWA — Small bluish xls of celestite have been found in geodes at Keokuk, Lee Co., Iowa.

KANSAS—Black ilmenite masses have been found in the volcanic plug near Stockdale, Riley Co., Kans.

KENTUCKY — Cleavable masses of galena in deep purple fluorite, are common in the Delhi-Babb fluorite mine near Salem, Livingston Co., Ky.

LOUISIANA — Something new in mining technique will be undertaken in the near future by the Freeport Sulphur Co. when it begins to operate its new sulphur mine at Bay Ste Elaine, La. The sulphur deposit is located far under the waters of Gulf of Mexico and in order to mine it, the operations will be conducted from a huge barge anchored over it.

MAINE — George C. Olmsted, 1129 James Blvd., Signal Mountain, Tenn., wrote us recently:

"A friend gave me a copy of the Portland (Maine) SUNDAY TELEGRAM of January 20, 1952, from which the attached two clippings were cut. I thought perhaps they might interest you."

One clipping dealt with a report that the General Chemical Company wants to buy for $1,200,000 the 1,000 shares of stock of the Piscataquis Iron Works Corporation owners of the iron ore deposit at Katahdin Iron Works, Piscataquis Co., Maine. This mine, worked for many years, was abandoned 60 years ago. The little town (pop. 20) is now all excited over the idea that mining may again be resumed and in the near future.

The 2nd clipping features the discovery of an Indian "lead mine" by a Waterville, Me., physician. The first few paragraphs of the lengthy clipping read as follows:

"Waterville, Jan. 19 — Dr. Thomas C. McCoy of 17 College Avenue, is good at solving Indian riddles—especially the ones about Maine's "lost" lead mines.

He says "he believes he has found one of the diggings.

"The doctor reported his discovery to the SUNDAY TELEGRAM a few days ago. He says it is the first time he has revealed his secret.

"Here is how he pinpoints his findings: It is in Somerset County near Great Moose Pond on the banks of Goodwins Brook, not far from where the stream passes beneath a railroad bridge.

"The docetor says the mine's entrance is at the base of a 20-foot out-cropping of rock. The spot is between two hills on cut-over land owned by a large timber Company."

MARYLAND — One of the finest slabs of translucent gem quality williamsite we ever saw — 1 x 2 inches in size — was received recently from Leslie E. Mihm, 603 Annslie Road, Baltimore 12, Md. This green serpentine comes from the abandoned chrome mine known as the State Line Pits, (because on Maryland-Pennsylvania line), in Cecil Co., Md. This old mine can still produce fine specimens but—you have to know where to dig!

MASSACHUSETTS — Mrs. Ruth I. Derby, Box 272, Lee, Mass., sent us recently a boxful of pebbles from a beach on the Atlantic Ocean. Her letter, dated Feb. 25, 1952, gives information on the locality.

"I am sending under separate cover some pebbles that may interest you. They were picked up at Cohasset, Mass., on what is know locally as Pebbley Beach. Cohasset is in Norfolk County on the south shore of Massachusetts Bay, about 25 miles south of Boston.

"The Beach is about three miles north of Cohasset P. O. on Jerusalem Ave. (sometimes called Atlantic Ave.). The beach is fairly steep and has a noticeable undertow. The rocky outcroppings on the shore line are pink granite with an occasional blue dike.

"The pebbles polish beautifully!"

Among the pebbles was a handsome dark red jasper 2½" long, black basanite, milky quartz, green epidotes, black basalt, reddish pegmatites—all nice specimens.

MICHIGAN — Nice specimens of colorless drusy quartz encrusting hematite occur in the iron mines at Ironwood, Gogebic Co., Mich.

MINNESOTA — In Jan.-Feb., 1952, R & M, p. 34, announcement was made of a copper-nickel deposit being discovered 12 miles S/E of Ely, St. Louis Co., Minn. No sooner had the issue been out, when we received a very nice specimen of the ore, 3 x 3 x 3 inches in size (3 lbs. weight), from Wayne L. Plummer, who at that time resided at Hibbing, Minn., (now his address is Box 30, Hackettstown, N. J.). A note sent with the specimen which was received March 17, 1952, reads:

"Specimen of copper-nickel ores discovered during the summer of 1951, about 12 miles southeast of Ely, St. Louis County, Minnesota—south of Birch Lake. The minerals include pyrite, chalcopyrite, pyrrhotite, pentlandite and other altered variations of the above minerals in a plagioclase feldspar matrix.

"It is reported that the material contains also traces of gold and silver."

MISSISSIPPI — Very fine fossil specimens of oyster shells, whale bones, etc., occur in the clays around Jackson, Hinds Co., Miss.

MISSOURI — Beautiful specimens of xled sphalerite have been found in the zinc mines at Carterville, Jasper Co., Mo.

MONTANA — Beautiful large masses of brown jasp-opal have been found at Big Fork, Flathead Co., Mont.

NEBRASKA — Fine rock xls have been found in geodes in a limestone quarry about 2 miles east of Wymore, Gage Co., Nebr.

NEVADA — A letter dated Feb. 26, 1952, has been received from Carl Austin, Box 368, Larkspur, Calif. It reads:

"Many people seem to believe that large low grade mines offer little for the mineral collector. I used to believe this, myself.

"However, last summer I worked in the Ruth Copper Mine (located in Ruth, White Co., Nevada, and operated by the Kennecott Copper Corp., Nevada Mines Division)—i.e., the open pit, and found that the opposite was true. While the open pit itself yielded little except good pyrite xls, specular hematite, and some of the other ore and oxide minerals, the small mines and prospects around the pit were excellent sources of fine specimens. Here are some of the commoner minerals found:

Hemimorphite — bunches and masses of xls up to 3/16" long.

Aurichalcite — xls and xl coating. Xls up to 3/8" long. I have collected about 50 lbs. — it is fairly plentiful.

Hydrozincite — large white masses and minute xls.

Rosasite — large botryoidal masses on limonite.

Limonite—pseudo after pyrite.

Plumbojarosite—with anglesite.

Galena — some argentiferous.

Wolframite — occasional fair xl groups.

Vanadinite — stalactites in gypsum xls (Bur. Mines Ident.).

Pyrite—occasional xls up to about 1¼", also many minute octahedrons, with some up to 3/16".

Smithsonite — massive and xline.

"Many other minerals have ben found such as quartz, calcite, fluorite, aragonite, various oxide minerals of copper and lead and many good garnet xls (spessartite) from a rhyolite area near Ruth.

"I don't know if any of these occurrences are worth noting, but I spent many enjoyable hours collecting minerals around Ruth in the Robinson Mining District."

At our request for some information on rosasite, Mr. Austin replied in his letter of March 10, 1952:

"The rosasite was identified by Dr. F. K. Vreeland of Mill Valley, Calif. I found the material which he identified at the 4th of July Claim which is about

¾ mile east of Ruth. The rosasite occurs with hemimorphite and aurichalcite on limonite or goethite.

"I have also found material tentatively identified as rosasite at the Sunbeam Claim which is near the 4th of July Claim.

"I will let you know when I find other minerals of interest."

NEW HAMPSHIRE — What is believed to be the 2nd occurrence for amazonstone (green variety of microcline) in New Hampshire was found recently by Dr. L. W. Carpenter, Limerick, Maine. In a letter dated April 8, 1952, from Dr. Carpenter, he writes:

"It was picked up on the beach — a worn cobble—at Isles of Shoales, N. H."

The specimen consists of small greenish xl masses and greenish cleavages in white granite. As far as is known, this is the 2nd occurrence of amazonstone in New Hampshire. T. R. Meyers in his report 'New Hampshire Minerals and Mines' (published by the State Planning and Development Commission, Concord, N. H., 1941) lists but one locality as follows:

"The green variety (of microcline), *amazonstone,* has been noted by Hawes at the 'Notch, presumably Crawford Notch.' " p. 17.

The Isles of Shoales are a group of 8 small islands in the Atlantic Ocean, about 10 miles S.E. of Portsmouth, N. H. They are barren, occupied by fishermen, and are well known summer resorts.

NEW JERSEY — A letter dated April 22, 1952, has been received from J. Kent Perry, R. D. I, White House Station, N. J. Part of it reads:

"On the way to Friedensville, Pa., last week, I stopped off at the serpentine quarry which you mentioned in the Jan.-Feb., 1952, issue of R & M under N. J. mineral occurrences (p. 35). We stayed only about 10 minutes but in that time collected some very nice material. I will send you a specimen in a few days. Also, there were poor soapstone, some nice asbestos, a little associated chalcopyrite, and I got one very small piece of torbernite in serpentine which kicks the geiger counter quite well for its size. I looked for this material many times in the abandoned Williams Quarry across the river (in Easton, Pa.) with no luck, but with a little work some nice material might be found at this working quarry in the fresh rock. Apply at the office—you can't go in the quarry where they are working but you can pick over anything dumped."

A nice specimen of the green serpentine, which should take an excellent polish, was received from Mr. Perry. The locality is on the Delaware River, 2 miles north of the toll bridge at Phillipsburg, Warren Co., N. J.

Incidently, John H. Bertrand Jr., 301 N. 10th St., Easton, Pa. (Easton is at the other end of the toll bridge) made a brief visit recently to the offices of R & M and leaving 4 interesting specimens of which one was a fine dark green serpentine from the above quarry. Formerly known as the Rock Products Co. Quarry, it is now called Royal Green Marble Quarry. A label with the specimen reads 'also can be found traces of molybdenite, pyrite, talc, dolomite, and the Lafayette College Mineralogy class (Easton) reports finding recently a xl of apatite.' "

Another letter, dated April 24, 1952, has been received from J. Kent Perry. It read:

"In the June, 1946, R & M (pp. 346-347) appeared an article by Peter Zodac about the old copper mine at Flemington, (Hunterdon Co.) New Jersey. The mine has all but disappeared, but there is some dump material — junkite — which consists of base rock with some tiny veins of bornite with some malachite stain. Well, yesterday I was puttering around when I found a large chunk of material which is nicer than any found for a long time and probably nicer than any that will be found for a long time to come. It must of weighed 20 or 25 pounds and I broke out 19 2" to 4" specimens

consisting of bornite and malachite. There are numerous little vugs lined with a thin coat of velvey malachite, and some have an unidentified mineral which occurs as tiny, transparent xls which would make nice m/m. My advice is stop and take a look if you are ever near, but don't waste time making a special trip."

A very good specimen, 2" x 3" in size, of almost solid bornite encrusted with malachite, was received from Mr. Perry. It is good to learn that the old mine has not yet exhausted its mineral possibilities.

An attractive colorful specimen consisting of chrysocolla, malachite, bornite, with calcite has been received from Bevan French, 98 Alexander Ave., Nutley, N. J. It comes from a basalt quarry at Great Notch, Passaic Co., N. J., and was found recently by Mr. French. His letter dated, Feb. 24, 1952, reads:

"I would like to report a small find of copper minerals in the active trap rock quarry at Great Notch, N. J. Under separate cover I am sending you one of the specimens which I found there. The specimens were not of too good quality, but were interesting since it was the first time I had found copper minerals there. The minerals which have been identified are bornite, malachite and azurite. I would be interested in knowing if any other finds of copper minerals have been reported from this or any other trap rock quarry in New Jersey.

"After this find I went up again and learned that the company does not permit collecting in the quarry due to the danger of accidents."

Copper minerals are common in the trap rock quarries of New Jersey—azurite, bornite, chalcocite, chalcopyrite, chrysocolla, copper, (native), covellite, and malachite have all been found. The quarry at Great Notch is apparently the one written up by the Editor in the Oct., 1944, R & M—"A trip to Great Notch, N. J.", by Peter Zodac, pp. 306-309.

NEW MEXICO—Very fine specimens of blue dumortierite in a quartz rock have been found in the Tres Hermanas district, Luna Co., N. Mex.

NEW YORK — Oscar Bodelsen, 219 Main St., Mt. Kisco, N. Y., reports the finding of white, pearly brucite on dolomite. The locality is in Westchester Co., N. Y., on North Bedford Road about ½ mile south of Bedford Hills railroad station. Quite a big chunk was found, during March, 1952, in a digging that was made to improve the property in that area. Mr. Bodelsen knocked off a piece for his collection, leaving the rest behind.

NORTH CAROLINA — Nice specimens of native gold in quartz have come from the old Russell Gold Mine, Glen Brook, Montgomery Co., N. C.

NORTH DAKOTA — A new dam is being built by Army engineers at Garrison, McLean Co., N. D. During the excavating, thousands of tons of lignite were uncovered, piled in great ridges and is being used as fuel for the construction machinery.

OHIO — A most interesting letter has been received from Eugene A. Kindt, Box 70, Put-in Bay, Ohio. Mr. Kindt lives on a little island in Lake Erie. His letter, dated March 1, 1952, is printed in full:

"It was interesting to note your alertness to the fact as a new subscriber to "Rocks and Minerals" that I live in the vicinity of Crystal Cave and Strontian Island and to associate me as living in the vicinity mentioned in your January-February, issue of 1950. Actually I live only 500 feet from the cave and property of Mr. Heineman. Thank you for the complimentary issue.

"In answer to your inquiry about Strontian Island, I would like to tell you a little about the islands of Lake Erie, or the Lake Erie Archipelago which extends into Lake Erie, and consists of twenty islands. The islands are formed by a narrow upheaval known as the Cincinnati Anticline. The upheaval centered at South Bass Island (Put-inBay). This upheaval formed arches and settling left the substrata of Put-in-Bay honeycombed by fissured rocks, water ways, and caves.

"The property on which I live consists of five acres and boasts at least two caves which are visited quite frequently by geologists and people interested in geology. These two caves are of quite some size and have underground lakes. Small pockets of celestite can be found and some perfect crystals have been removed.

"I would also like to tell you as much about the history of Crystal Cave on the property of Mr. Heineman, my neighbor, as I could learn.

"In 1882, a Lieutenant Vadador on leave of absence from the German army, visited Put-in-Bay and became acquainted with John Brown Jr., son of John Brown the abolitionist of Harper's Ferry fame—who resided on the island at that time. They were both interested in geology and together went on trips exploring rocks and caves.

"Lieutenant Vadador prospecting on his own one day, came across the deposit of celestite on what is now the Heineman property.

"He took out a lease on the ground for 25 years, then opened up a vein which was about six feet thick, and took out a large quantity of celestite, then stopped and for some reason left the island.

"For a time he made regular payments on the lease and kept in contact by letter with Mr. John Brown. The letters finally ceased and the payments on the lease were not made for several years. It was then that the propery was purchased by Gustav Heineman.

"Mr. Heineman investigated the diggings and the discovery of Crystal Cave followed.

'Now in direct answer to your letter of February 8, I would like to say that on February 22 my father and I made a trip to Green Island across a mile of thin and somewhat treacherous ice. The day was cold and not too pleasant. We found quite a bit of snow on the island, but we did come across a pit about thirty feet in diameter. The bottom was filled with ice so we do not know the actual depth of the pit but it was about fifteen feet from the surface to the ice.

"The pit contained quite a quantity of celestite but we did not locate any perfect crystals. We took some samples and are sending some to you. On leaving the pit we made a short tour of the island, although we did not make a thorough search we discovered small deposits of celestite in the outcropping rock.

"Green Island which is uninhabited and about 20 acres in size belongs to the United States Government.

"Green Island is definitely Strontian Island. The following information was obtained from the Franz Theodore Stone Institute of Hydrobiology.

"Lake Erie—Bureau of Topographical Engineers, War Department. Survey of the Northern and North Western Lakes, 1849. Green Island was then known as Strontian Island.

"I am also sending you some celestite and calcite taken from various parts of Put-in-Bay, as well as a sample taken at Green Island. I am not sending perfect crystals but they can be found on the islands."

From Put-in-Bay we received the following specimens:

Calcite — small colorless xls on dark gray limestone; group of small grayish xls! pale brownish xl on dark gray limestone. All xls fl. and phos. greenish-white under the Mineralight.

Celestite—bluish-gray loose xls, one 2 x 2½" in size and weighing 1 lb., came from the Crystal Cave, A 1 x 1" cleavage, deep bluish-gray in color is of gem quality (transparent) but flawed — this also came from the cave. Another specimen consists of small bluish-gray xls on a dark gray limestone.

Fluorite—small brownish xls on dark gray limestone. The xls fl. and phos. bright cream under the Mineralight.

From Green Island (Strontian Island) a group of white platy celestite xls was received.

OKLAHOMA—Beautifully xled, whitish, dogtooth xls of calcite, often in circular masses in the center of which may be marcasite, have been found at the Tri-State zinc mine at Cardin, Ottawa Co., Okla.

OREGON — Small flattened nuggets of gold have been seen from Eagle River, Baker Co., Ore.

PENNSYLVANIA—John H. Betrand Jr., 301 N. 10th St., Easton, Pa., called on us Sat., April 12, 1952, and as a memento of his visit left 4 very fine specimens, which he had collected recently. Three specimens came from the noted Kibblehouse Quarry at Perkiomenville, Montgomery Co., Pa. The rock quarried is a hard shale that is locally called "trap rock." The specimens are:

Calcite—very fine thin platy white xls with brownish stilbite on rock.

Pyrite—lustrous tiny cubes with beveled edges on white natrolite.

Stilbite—pale brownish tiny xled masses appear to be coating some mineral as the stilbite has a botryoidal appearance. Thin plates or disks of white calcite are attached to the stilbite.

RHODE ISLAND—A beautiful gem pebble of smoky quartz, 1" in diam., is in the collection of Donald S. Wrathall, 47 Common St., Providence 8, R. I. Mr. Wrathall found it at the noted amethyst locality on Bristol Neck, Bristol Co., R. I.

SOUTH CAROLINA — Some fine gemmy sapphires have been found in the Bowen River region, Cherokee Co., S. C.

SOUTH DAKOTA — White, coarse xline masses of calcite occur in a canyon near Westreville, Clay Co., S. D. A specimen from the locality was sent by Mrs. E. P. Olson, Box 425, Beresford, S. D.

TENNESSEE—Grayish crinoid fossils in a dark grayish limestone and coming from Standing Stone Park, Overton Co., Tenn., have been received from William M. Johnson, RFD. 6, Knoxville, Tenn.

TEXAS — Sharp, pale brownish xls of aragonite have been found at Battle Creek, in the N/W corner of Briscoe Co., Texas.

UTAH — Dr. A. L. Inglesby, Torrey, Utah, has sent R & M another large assortment of minerals from his area. Among them were 5 thundereggs and 3 sections all from the foothills of the Henry Mts. in Garfield Co., Utah. They are all beautiful specimens — the thundereggs are of good size, up to 2½lbs. in weight, each having a sawed polished face. One is bluish-gray, 3 are reddish, and one a deep red. The 3 sections (from the thundereggs) are sawed and polished slabs—reddish and reddish-brown mottled. All of these specimens have agate centers. This material occurs in a clay layer in the top of the Morrison formation; they claim this is the thickest layer of Morrisom known—some 400 to 600 feet thick.

The other minerals received are:

Autunite — Tiny greenish scales on a brownish kaolinized rock (the autunite fluoresces green under the Mineralight). It comes from Marysvale, Piute Co., Utah.

Carnotite — Two interesting petrified wood specimens, brownish in color, are coated with canary-yellow incrustations of carnotite. They come from Trachyte Creek in the Henry Mts., Garfield Co., Utah.

Metahewettite — Tiny dark reddish xls on a friable blackish vanadiferous sandstone. The locality is Trachyte Creek in the Henry Mts., Garfield Co., Utah.

Quartz (Smoky) — A nice sawed slab, ¼ inch thick, 2¼ x 4 inches in size, comes from the Goshute Indian Reservation, Western Juab Co., Utah. A letter from Dr. Inglesby, dated Feb. 20, 1952, has this paragraph: "I am sending you a slab, but the piece is not too good. I was interested in the mine in the area about 20 years ago and a fellow showed me this quartz. I promptly forgot it. Just recently an Indian told me the government had withdrawn the area and is mining the quartz. There were some xls 10 inches long and beryl (very poor but in large xls)." This locality was mentioned in the last issue of R & M, p. 37.

Zippeite—An interesting specimen consisting of zippeite, selenite, asphaltum and some green copper minerals was also received. The zippeite is a yellow powder occurring in cracks and cavities. The selenite is colorless and platy (some tiny xls occur also in cavities): the asphaltum

is present as black stains on the selenite. The copper minerals are probably mixtures of libethenite, olivenite, chalcanthite, etc., occurring as stains and earthy incrustations. The zippeite fluoresce bright yellow-green under the mineral-light. The locality is 2 miles S/E of Fruita, Wayne Co., Utah.

In U. S. Geol. Survey Bull. 750 (Wash. D. C. 1925) on p. 70 appears the following item from a paper by Frank L. Hess:

"About 2 miles southeast of the little group of houses known as Fruita, in Wayne Co., Utah, a fine eastward-draining canyon, the Grand Wash, has been cut down through the heavy creamy and pink Jurassic sandstone, the thinly bedded Chinle (upper Triassic) red beds and the Shinarump conglomerate, which is exposed near the bottom of the north side of this canyon.

"Here a patch of the Shinarump conglomerate carries some asphaltite, which was laid down as a sediment as a part of the 'conglomerate.' With the asphaltite is a bright-yellow uranium mineral, zippeite, accompanied by green copper minerals, the contrast in color making the uranium mineral more prominent.

"The zippeite is a powder."

Sandstone (vanadiferous) — a dark brownish-black mass which comes from Trachyte Creek, Henry Mts., Garfield Co., Utah.

A letter from A. A. Brown, 143 N. State St., Salina, Utah, dated March 3, 1952, reads as follows:

"The other day in a conversation with Dr. A. L. Inglesby, of Torrey, Utah, he called my attention to an article in the last issue of ROCKS AND MINERALS relative to some smoky quartz crystals found near Milford, Beaver Co., Utah. (R & M, Jan-Feb., 1952, p. 37).

"About two years ago I found a small deposit of these crystals in that locality, and am taking the liberty of mailing you some of them in the hope they will add something worth while to your collection. Please accept them with my compliments.

"Am enclosing check for 2 years subscription to your very excellent magazine, ROCKS AND MINERALS."

The crystals are very beautiful, deep black in color, lustrous, and are either loose, 2 x 5 " in size, or in xled groups 2¼ x 4, some xls were imbedded in grayish-white coarse xline albite.

VERMONT — A letter has been received, dated April 18, 1952, from George W. Lowe, Box 192, Randolph (Orange Co.), Vt. It reads:

"I am sending a few minerals that are in quantity on my farm. As I am only a beginner, I hope you will excuse anything that may not be of interest."

Among the specimens were:

Calcite—Cream colored, cleavable, with smoky quartz and green chlorite.

Chlorite — Common as it was seen with every specimen. It is greenish and foliated. A nice 3 x 5" specimen of green chlorite schist also received.

Dolomite — Brownish, cleavable, with talc.

Malachite — Common as green stains and incrustations on quartz.

Quartz—Smoky and massive

Talc — Greenish, foliated, with dolomite.

VIRGINIA — Commander John Sinkankas, who conducts the Amateur Lapidary in R & M, has been making a few discoveries of good gem material in Virginia. He lives at 1107 S. Oakcrest Road, Arlington, Va. (just on the outskirts of Washington, D. C.). In his letter dated April 25, 1952, we read:

"Found a big pebble of cuttable jasper out near Peola Mills (Madison Co.), Va., lately and am slowly getting convinced that the *in situ* locality for it must be in the Massanutten Mt. which is just on the other side of the Blue Ridge. When I find it, the east coast will have a sure enough gem locality to add to the list. Am having the U. S. National Museum slab it for me with shares to them. Jim Benn there always appreciates having something unusual from around Washington, D. C. They did a beautiful job on an agatized piece of wood which I

found in the same pit we visited together (large sand and gravel pit near Franconia, Fairfax Co., Va. See R & M, March-April, 1952, p. 144). The piece was about 14" long and about 4" thick, light brown, tan, and grayish, and polished solidly all the way thru. It caused quite a stir among our local cutters who hadn't seen anything like that before from Virginia. My jasper has had the same effect.

"Cedric Gleason (4941 Butterworth Pl., N.W., Washington 16, D.C.) showed me some big very intensively etched epidote xls that he got from a farmer 4 miles south of Madison (Madison Co.), Va. These were found loose in a bright red clay. The xls are about ¾" in length. I got a small one from him and checked it last night for facetting. It seems clearer and lighter in color than most epidotes I've gotten my hands on. Maybe Virginia will produce another locality. We will run a club field trip to Rose River for unakite next Sunday so I want to check on the epidote at that time."

WASHINGTON — Lloyd Colburn, 1012 Kessler Blvd., Longview, Wash., has sent R & M a specimen of coprolite, a dark brown spiral mass, 2½" in diam. and 2½" high. In his letter dated Feb. 26, 1952, he writes:

"These coprolites are found in red clay washed into Salmon Creek at Toledo, Wash., on highway U. S. 99 (in Lewis Co.) of S/W Washington. When the weather is dry, in summer, is the best time to collect them."

Coprolite is a fossil dung or excrement of animals. It was named by Dr. William Buckland, an English geologist (1785-1856) who found the mineral in abundance in certain deposits in the lias (of England?) and determined to be the fossil excrement of the gigantic reptiles (Saurians) of that period. Coprolites are often twisted or spiraled showing the mark of the intestines, and they are generally found in heaps in a deposit. As they contain a large amount of phosphate (up to 85%), coprolite, when it occurs in abundance, can be used as a mineral manure for the enrichment of soil. Strange as it may seem, some coprolites, especially when silicified, can be cut and polished as they have a degree of beauty all their own which makes them unique as gem stones.

The name "coprolite" comes from two Greek words meaning "dung stone", and named by Dr. Buckland as mentioned above.

WEST VIRGINIA — J. W. James, 923-32nd St., Parkersburg (Wood Co.), W. Va., has found some interesting shell fossils in his city. The shells, brown in color, occurs in sandstone which outcrops along Worthington Creek.

WISCONSIN — A new lead-zinc mine has been opened up near Hazel Green, Grant Co., Wisc., by the Eagle-Picher Company. It might be worth investigating for mineral specimens.

WYOMING — The following letter, dated March 1, 1952, comes from Edward L. Dowse, 329 Reed Ave., Salt Lake City, Utah. It reads:

"The piece of black jade sent you comes from Fremont County, Wyoming, about 40 miles from Three Forks, Wyo. Three Forks is north of Rawlins, Wyo., somewhere about 45 miles on U. S. Highway 287. Leaving Three Forks you go northwest towards Lander, Wyo., for about 40 miles, then you turn north on a dirt road crossing the Sweetwater River and you may hunt for jade anywhere here.

"You can, if you are lucky, find jade on either side of U. S. 287 going in to Bison Basin for many miles as this is all glacial drift and the jade was carried in there. This is on the south side of 287. To the north of 287 is where most of the black jade is found, also a very dark green and olive green and this covers many miles.

"In the Bison Basin I have found green jade with a black border. I was out with a fellow from Casper, Wyo., when he found a piece of jade, weighing about 3 lbs., a kind of a cross between mutton fat and olive. It was translucent and polished as easily as an agate. On other occasions I have picked up small pieces

UNIVERSITY OF MICHIGAN LIBRARIES

of apple green color that would cut a cab or two just clear translucent green. Black olive and brown colors are also found.

"I have a friend in Three Forks, a Mr. Lewis P. Vondrasek, who, I think, has more black jade than any other rockhound in Wyoming. I have seen black jade boulders in his back yard that would weigh several hundred pounds; also gray jade running into tons.

"In case you should want to write Mr. Vondrasek his address is—Rawlins-Casper Route, Rawlins, Wyo."

A beautiful cabochon of black jade from the Fremont Co. locality has been received from Mr. Dowse.

ALASKA — A nice piece of b'ack slate has been sent us by William Freiter, 210 E. 2nd Ave., Anchorage, Alaska. His letter dated April 6, 1952, reads:

"I am always interested in different rocks and minerals and this summer hope to find some nice ones and if I do will send you some. I do hope I can find some Alaska 'black diamonds' (hematite) or jade.

"The piece of slate sent you was chipped from the side of a mountain ½ mile east of Curry, Alaska. The whole mountainside was the same — all slate.

"The weather has been real nice the last week, and not much snow left."

AUSTRALIA — A registered letter dated Feb. 20, 1952, has been received from H. H. Batchelor, Box, 98, Hughenden, N. Queensland, Australia. It reads:

"I am enclosing 4 peridots (3 partly cut and 1 rough). Their weight is 20 carats and they should cut at least 15 carats. These stones are a fine golden green.

"The stones come from the upper Gilbert River country of Queensland, 150 miles N/W of Hughenden. In the same belt of country sapphires, zircons, topaz, diamonds, aquamarines, and garnets are found besides gold, tin, tungsten, copper, mica, etc., etc. The country consists of granite, basalt, and slate; it is wild and uninhabited. I dug the stones myself.

"We have had no rain now for 15 months and during the past 5 months temperature from 9 a.m. to 3 p.m. ranges from 110° to 120°F. but usually drops

Edward L. Dowse (left) and Lewis P. Vondrasek looking over a nice display of gray jade boulders from Fremont County, Wyoming. The jade is the property of Mr. Vondrasek.

to 80° by 3 a.m. Needless to say there is no surface water. There have been awful bushfires.

"As soon as it rains, I am first going after a pale blue trachalyte (very rare) and then south of Hughenden 220 miles in the Drummond Ranges after alexandrites. If I have luck, I hope to advertise with you again. I am now clean out of tektites."

CANADA — A handsome specimen of lustrous silver-white mass of cobaltite with massive bronzy chalcopyrite and encrusted on one face by peach-red erythrite, was donated to R & M not long ago by E. H. Sarles, 2026 Elm Ave., Norwood 12, Ohio. The locality for the specimen is Werner Lake, western Ontario, Canada.

CYPRUS—Copiapite, yellowish earthy masses, occurs in the copper mines near Skouriottissa, Nicosia, Cyprus. This little island in the Mediterranean Sea, is noted for its mines and minerals. Cyprus is an English possession.

DENMARK — Fluorite, chiefly violet in color but green and brown also known, have been found in small xls at about 10 different localities on the island of Bornholm in Denmark. Where the mineral is especially common is a pegmatite locality west of Almindingen, Bornholm.

EGYPT — John S. Albanese, Box 536, Newark 1, N. J., has donated a nice specimen of dark brownish black wolframite (with smoky quartz). The locality is Gebel Fatiri, Eastern Desert, Egypt.

ENGLAND — Small bluish xls of beryl with topaz and cassisterite have been found at St. Michael's Mount, Cornwall, England.

GERMANY — Beautiful specimens of green xled fluorite have come from Hesselbach, by Oberkirch, Baden, Germany.

GREECE — The island of Naxas, Greece, is famous for its emery deposits which have been worked for many years.

IRELAND—At Portrush, Co. Antrim, Ireland, are found nice xls of gmelenite, greenish-white in color.

ITALY — Fine specimens of large, yellow, gemmy stalactites of smithsonite have been found in the zinc mines at Masua, Island of Sardinia, Italy. The mineral has been cut and polished for ornaments.

Mrs. Lewis P. Vondrasek (left) and Mrs. Edward L. Dowse examining the large stock of black jade in Mr. Vondrasek's back yard. Some of the black jade boulders weigh several hundred pounds. All jade comes from Fremont County, Wyoming.

JAPAN — Very nice pyrite xls have been found in the copper mine at Sagi, Izmo Province, Honshu Island, Japan.

MEXICO — In the Nov.-Dec., 1951, R & M, p. 620, mention was made that Roy Shoemaker, 1827 W. Drescher St., San Diego 11, Calif., had seen some wonderful golden dogtooth calcites which had come from somewhere around Rosareto, Lower Calif., Mexico. In a letter dated Oct. 20, 1951, he writes:

"I have made another trip into Mexico and located the amber calcite deposit. It is a seam 4 to 10 inches thick. I got some wonderful xls — some large single xls, some groups that make nice cabinet specimens. Now I have a problem. Some of the xls have a coating of white calcite. I don't know how to remove the coating to show the real golden color and beauty of the base material. Have you any suggestions to offer?"

A nice dark brown petrified wood 2 x 4½" in size, was received from Mr. Shoemaker. "It comes from an area in Lower California, Mexico, south of Imperial Valley, California. It is said to be mesquite wood," his letter told us.

NORWAY — Orangite, the bright orange variety of thorite, occurs as xls and in massive form at Brevig, Telemark, Norway.

PANAMA—Near Guinea Point, Canal Zone (Pacific end of the Panama Canal), Panama, white incrustations of cacholong opal on grayish chalcedony have been found by Burton E. Davis, Box 1181, Cristobal, Canal Zone.

PERSIA — Large deposits of chromite were discovered in the southern part of Persia in 1951, in the Baft district, 180 miles N/E of Bender Abbas.

PHILIPPINES — A black xline mass of chromite from the Philippine Islands has been donated to R & M by G. H. Haldén, 270 Lewis Ave., Millbrae, Calif. The locality for the specimen is the Acoje mine near Santa Cruz, Zambales Province, N. Central Luzon Island.

SCOTLAND — Brownish-red xls of staurolite occur in gneiss near Woodwick in Unst, Shetland Islands, Scotland.

SOUTH AFRICA — A nice specimen of muscovite, lustrous silvery plates in flesh colored pegmatite, has been donated to R & M by Dr. Claude H. Barlow, Box 54, Trumansburg, N. Y. The specimen comes from Mica, Eastern Transvaal, South Africa, and was collected personally by Dr. Barlow during 1951, while working on a scientific project in that country.

UGANDA — A nice specimen of black, micaceous hematite has been donated to R & M by John S. Albanese, P. O. Box 536, Newark 1, N. J. The locality is Kigezi District, Uganda, East Africa.

WALES—Native gold has been found at Gogfan near Caio, in Carmarthenshire, Wales.

Vote of Confidence!

Editor R & M:

Just finished reading the letter by Chas. Knowlton and your reply in the March-April issue. You have my vote of confidence and I believe your reply is correct to the letter.

To me it seems you should have more representation and less criticism from the West. Why don't some Westerner conduct a column in R & M? I would suggest calling it "What's New in the West.", or something like that. It should be written up somewhat like the column conducted by Charles Thomas — news of new localities, news of collectors, news about dealers and activities of the western clubs.

I would gladly volunteer my services to do the job except that being a dealer it might not be so good. I am not a writer but believe I could assemble a good deal of information by requesting it from your western advertising dealers, most of whom I know. Let me know what you think of this — might be we could make these western critics happier.

Roy O. Plummer
(Plummer's)
April 24, 1952. San Jose, Calif.

All Enjoy R & M!

Editor R & M:

We are enjoying ROCKS AND MINERALS and do appreciate your efforts in preparing so readable and interesting a magazine.

S. B. Granger
March 14, 1952. Grand Ledge, Mich.

YOUNG DANISH ENGINEER STUDIES U. S. METHODS TO APPLY TO HUGE GREENLAND LEAD DEPOSITS

WASHINGTON — A study being made in the United States by a young Danish mining engineer is expected to speed the development of lead deposits in Greenland, estimated to contain a million tons of the metals — an amount equal to the annual world output.

The value of the recently discovered lead deposits is such that their successful exploitation may balance Denmark's postwar deficit in administering Greenland.

The engineer on a two-month study in this country is Carl Koch, 26, who was a member of two expeditions to Greenland which established the existence and extent of the lead deposits. His father, Dr. Lauge Koch, noted Danish arctic explorer, paved the way to discovery of the lead through previous expeditions.

Young Koch, who will be assigned to the exploitation of the Greenland lead deposits, has come here to study modern mining methods and mining production efficiency before starting his work in Greenland.

"The Americans have obtained the best results per day and per man with diamond drills, and I should like to learn what they have accomplished in the field of productivity in mines," Koch told officials of the Economic Cooperation Administration, which is sponsoring his study trip under its technical assistance program. Koch's program in this country was outlined for ECA by the U. S. Bureau of Mines.

Koch became a mining engineer three years ago upon graduation from the Filipstad Mining School in Sweden. He was obliged to study and receive his degree there because Denmark has no training for mining engineers. Not until the finding of the Greenland deposits was there any need for mining specialists in raw-material-short Denmark.

Since 1933, Danish geologists have made routine investigations in East Greenland, searching chiefly for gold and oily slate deposits. Until 1948, the findings were of little interest, but in that year veins of lead-bearing quartz were found near Mestersvig in King Oscar's Fjord, which is located farther north than the northernmost point of Alaska.

The successful expedition was headed by Dr. Josef Eklund, Swedish geologist, and comprised two other Swedish experts as well as Carl Koch. The veins of quartz contained large amounts of lead and zinc and covered a large, easily accessible area.

In 1949, Koch went to Mestersvig on a new expedition with the Swedish experts, which resulted in a rough estimate by Dr. Eklund that the veins contained a million tons of lead. The 1946 annual world output has been estimated at 1.3 million tons.

Plans are underway for establishment of a lead company to be financed by Danish and foreign investment. The plans, calling for year-round commercial exploitation operations, are scheduled to be completed before the end of this year.

Koch's father, a geologist, went to East Greenland for the first time just after World War I, and in 1921 organized his first expedition to the world's biggest island. Practically every year since, Dr. Koch has organized geology expeditions to East Greenland. He and fellow geologists have covered all fields of geology and principally paleontology and the structure of mountains.

Before the last war, Denmark's administration of Greenland was able to operate without loss, largely because of earnings of a cryolite mining company. Since the war, large Danish investments for hospitals, water supply and other improvements have produced deficits in the fiscal balances of Denmark and Greenland. The Danes, hope that exploitation of the lead deposits will again balance the finances.

UNIVERSITY OF MICHIGAN LIBRARIES

THE AMATEUR LAPIDARY

Conducted by COMMANDER JOHN SINKANKAS
1107 S. Oakcrest Road, Arlington, Va.
Amateur and professional lapidaries are cordially invited to submit contributions and so make this department of interest to all.

THE SIZE AND SHAPE OF CABOCHONS

General

The shapes of cabochons can vary infinitely depending on the whims and taste of the lapidary; further, cabochoning can be combined with faceting to provide stones utilizing the best features of each. In spite of the enormous variety of forms from which the lapidary can choose, the choice boils down to a relatively few which among them comprise by far the greatest number ordinarily used. For the sake of uniformity in the amateur's collection, large size stones of the same shape are highly desirable and varying shapes, although intriguing, have no particular merit.

Types of Cabochons

Cabochons may be classed by their cross sections and outlines.

By Cross section: (Fig 3.)
- Common—flat bottom, curved top
- Lentil—double cab, or convex top and bottom
- Hollow—curved top with concave bottom
- Flats—flat bottom and flat top
- Cuvette—flat bottom and concave top

By Outline: (Fig. 1.)
- Common—ellipsoidal (oval), circular; Polygonal—squares, rectangles trapezoids, etc.
- Assymetrical—pears, pendants, navettes, etc.
- Special—cylinders, beads, cubes, cones, ec.

Standard and Non-Standard Sizes

Most textbooks leave little doubt that only standard sizes in cabochons should be cut pointing out that it will then be easy to set them in stock mountings and if any of the stones should be sold, they will find a much readier and more remunerative sale. This is probably true if you intend to sell cabochons of common material in quantity. However, for the finer and more expensive materials, standardizing size is not always resorted to except in matching stones for earrings, bracelets, etc. These materials deserve and should receive hand-made mountings instead of the monotonous and over-fussy stock mountings usually provided. If they are mounted in hand-made jewelry, standardization of sizes means nothing. If the amateur expects to sell cabs regularly, he is in for a shock at the prices received per piece. Obviously he must spend less time on each cab and also drop quality a bit, otherwise he will not get a price commensurate with his effort. Cutting with a commercial view always sounds good but in the cold light of dawn, it seldom pays off except for those who have the time needed to produce vast quantities of cabochons on schedu'e. When large and unusually fine slabs of material come into the amateurs hands, it will be difficult to adopt the view that they should be sliced into standard sizes for the sake of nebulous future sales. Such slabs should be treated according to their own merits and made into cabochons of magnificent size. They will then pay more in satisfaction and appreciation than in money.

My advice then, is this: For common or mediocre material do not feel that you must cut standard sizes for commercial reasons unless you are prepared to *really* go into business; the chances that you will sell your products for a reasonable price are remote. If you intend to give presents of your workmanship in the form of finished jewelry using stock mountings then by all means cut to standard size. For unusually fine common materials or rare items, cut for beauty and size alone, since such pieces should receive

hand-made mountings and in any case, they will be salable on their own merits.

The presently accepted "standard sizes" are best supplied by the Davey templates which are extremely accurate and durable. It is unfortunate that his templates do not go into the larger sizes for which there is presently a definite need. I have been forced to buy larger size templates from shops carrying draftmen's supplies. Such shops have a wealth of plastic templates in all sizes and shapes from single plates containing various profiles to plates containing one particular profile but in different sizes. All such templates are extremely accurate but do not necesarily provide "standard" openings. Because of their accuracy, these templates along with the Daveys, cost several dollars apiece but are worth it. Cheap templates can be purchased but are sometimes so inaccurate that stones made from them will appear lopsided.

Preparation of Blanks

A coarse file should be kept at hand to keep the aluminum marking pencil sharp, alternatively, a piece of coarse sandpaper tacked on the bench will do just as well and may be more convenient. When marking profiles thru the template, always consciously place the pencil point into the very corner. Do not let it ride along the top edge of the template opening. And whatever you do, do it the same way each time so that you can always count on the same degree of error. (See Fig. 2.) This is only important when making up standard sizes where the profile left by the grinding wheel must exceed the aluminum mark by one or two millimeters in order to compensate for the inability of the pencil point to get right into the corner of the template opening and mark exactly the right size. Another reason of course, is to provide a little extra which can compensate for the removal of stone when grinding the

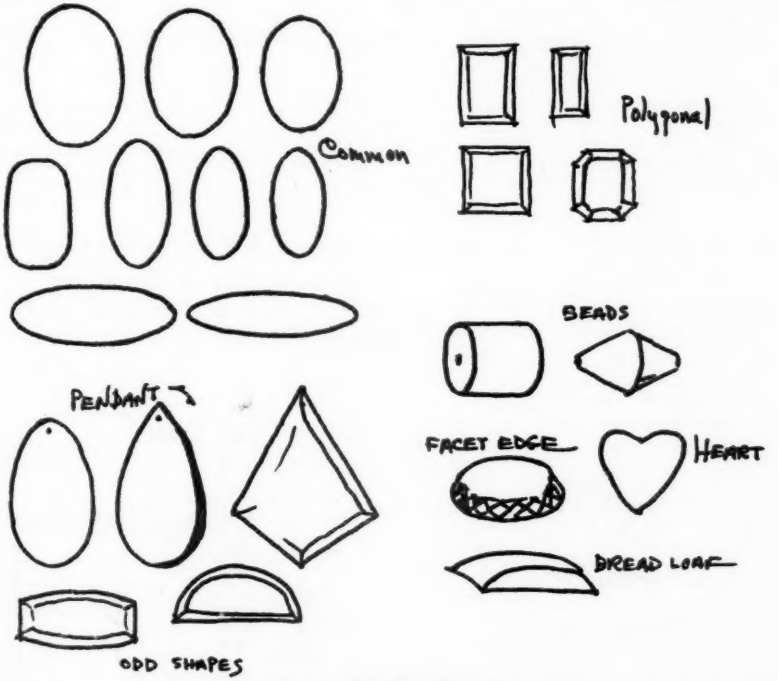


Fig. 1—Cabochon Shapes

tiny bevel along the base.

Incidentally, before we go further, it is wise to point out here that the side of the slab being marked should be flatted before marking. If the stone is to be polished on the bottom as well as the top, it has been found profitable to lap the slab on 220 followed by 400 and then mark. After finishing the top, the stone is turned around, re-dopped and the bottom lapped with Griegers 1200 Final Lapping Compound. It is then ready for polish. If polishing is not required, then the lapping stops at 400 grit which will leave a fine professional matte finish. If your saw cuts a rough slice, it may be profitable to trim saw out the particular piece you intend to use before lapping so as to cut down the time and tedium of the latter.

The common type of flat bottom cab is readily handled as described above but in the case of the lentil or double cabochon considerable additional work is required. If a lentil is cut from a slab, no surfacing is required except enough to provide for clear marking with the aluminum pencil. The outline is marked out as before and the blank is profiled on the grinding wheel leaving the two mm or so leeway around the edge. Next the blank is placed on a flat surface and the junction line between the top of the lentil and the bottom is marked out by rotating the blank against an aluminum pencil supported by a flat block of some

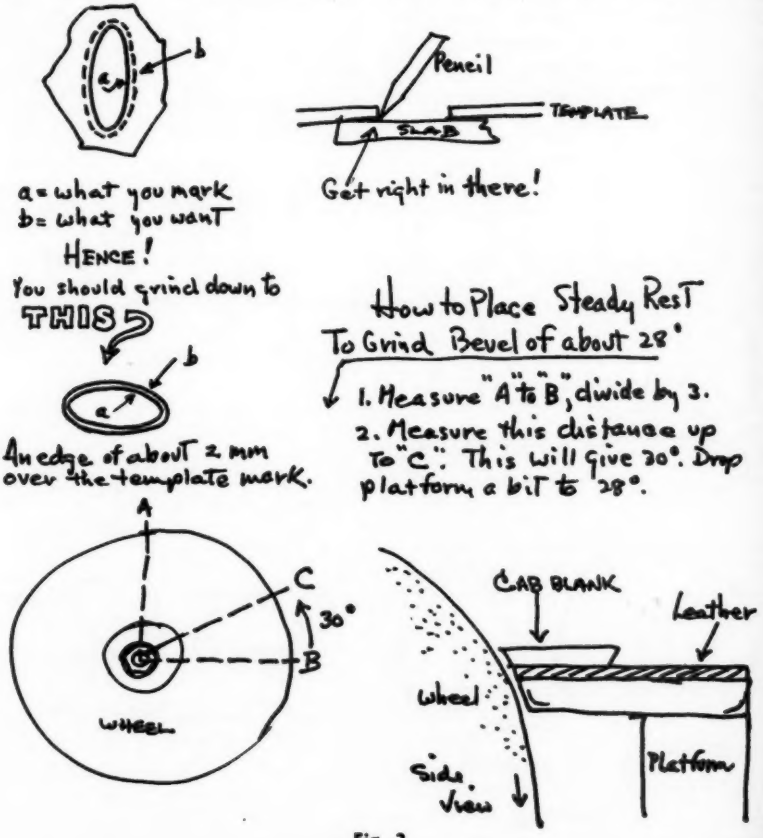


Fig. 2

kind at an appropriate height above the table. From this point on, great care must be exercised to cut each half evenly toward the marked line to prevent a lopsided stone. In the case of lentils made from star sapphire rough, blanking is obviously wasteful and the pebble is processed by hand to round it off into a fair approximation of its finished form.

In the case of the rough pebbles of opaque or difficulty translucent materials like Idaho star garnets where a lentil shape is not of particular merit, the whole top of the stone can be processed completely then separated from the rough bottom by careful sawing. If the sawing job is somewhat off, this can be corrected by judicious grinding to bring the star to the apex where it belongs.

Profiling a stone up to the aluminum template mark is a difficult thing to do accurately, particulary when done freehand on vertical grinding wheels. A technique that is almost sure to guarantee faultless results can be adopted however by a slight modification of ordinary equipment (See Fig. 2). In this scheme, a steady rest platform such as that used in machine grinding shops, is installed in front of the grinding wheel. The platform is raised an appropriate distance above the center line of the wheel so that the bezel when it is ground will be at the desired angle of about 28 degrees. The platform is faced with a piece of shoemaker's sole leather which when wet allows the blanks to slide readily over their surface. The blanks, nibbled to approximate shape, are then rested firmly on this platform and rotated against this wheel to achieve the profile desired. This is extremely accurate, permits positive control of the operation, prevents chattering of the stone and development of bumps in the wheel and also almost entirely eliminates chipping of sharp edges. The nice thing about it is that you finish up a blank with the correct bezel angle.

Types of Crowns

The usual mark of the unskilled lapidary is the excessively high crown placed upon cabochons (No. 3 in Fig. 3). The professional does not use a high crown except when forced to do so by the material or the effect to be achieved. For most standard jewelry work, the professional pretty much sticks to a very flat cab whose top is very shallowly curved and whose edges drop off abruptly from the bezel (No. 5 Fig. 3). This type of crown has the advantage of presenting a flattish picture of the stone pattern or color, is light in weight (a very important consideration for brooch and pendant

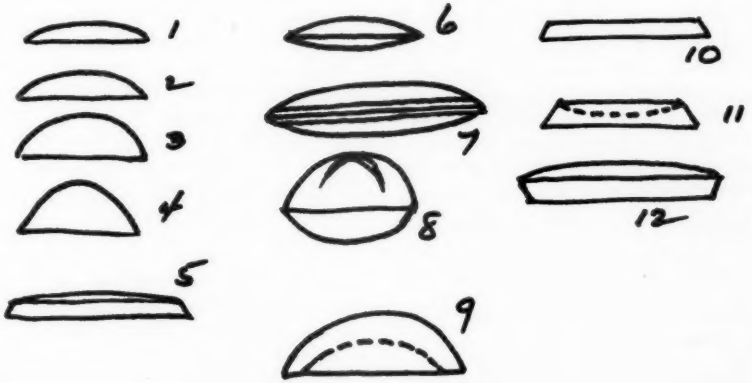


Fig. 3—Cross Sections

1-4, Common; 5, Professional; 6, Lentil; 7, Lentil with Bezel; 8, Double cab for Stars; 9, Hollow cab (carbuncles); 10, Tablet; 11, Cuvette; 12, European Exhibition.

stones of large size) allows the stone to be more translucent and also is economical of material. On the debit side, it is a shape which is more difficult to do well since the higher crowns are always easier to sand and polish. Thus the professional cab may be quite thin, for stones of even 2 inches in length, the thickness may not exceed 1/8".

The following materials are extremely effective in very flat cabs and some indeed, are not effective otherwise:

Agates with strong patterns, fortifications, bands, etc.

Jaspers—thickness has no merit due to the opacity of the material.

Mosses—particularly the green India mosses and fern types.

Montanas—thin cabs are very effective since only the thinnest possible layer of clear agate should obscure the moss.

Dyed agates—translucency helps the colors to glow.

For flattish topped cabs but somewhat thicker to lend strength, the following materials are appropriate:

Malachite

Feldspars (excluding adularescent varieties) sunstone, labradorite, perthite, Virginia and Canada moonstone, amazonite.

Lapis, sodalite, opal, obsidian.

For well rounded tops, particularly in jewelry of a barbaric or primitive tone, the following materials are worthy:

Turquoise, opal (particularly Mexican), amethyst, tourmalines, citrine, Ceylon moonstones, etc., amber, garnet.

For star and catseye stones, the following minerals are noted:

Sapphire, quartz, chrysoberyl, scapolite, etc. In the case of star garnets, a decidely high crown is not really necessary as well as for the opaque star sapphires.

A lentil or flat double cabochon is particularly useful when preparing pendants. Moss agates and other minerals of those noted under the very flat types of cabochons are handled to best advantage here. The lentil cross section, polished equally well on both sides, is really the only way to handle pendants since any reversal of the pendant during wear will present a similarly attractive face. This is fine for agates particularly, but for opals and a few others where one side of the pendant is obviously best, the jeweler should make up the fastening at the top in such a manner that it tends to keep the pendant flat and best side up.

The hollowed-out cabochon is excellent for almandine garnets made into high rounded cabs, the so called "carbuncle." The richness of color and the effect of opulence are preserved without suffering an overly heavy piece of jewelry. For almandines in closed settings, it is customary to cement foil on the backs of the cabochons to reflect light back thru the stone and thus lighten its color. This does away with the necessity for hollowing out the cab except for very large specimens which should still be hollowed out to reduce weight and lighten the color.

Tabular cabochons can be handled on faceting or cabochoning equipment. Classically, dyed agates, carnelians, bloodstones and others, are prepared this way. Often they are further engraved with initials, coats of arms, etc., or further embellished by piercing and mounting small stones or ornaments in their centers. The cuvette stone is most often handled in this manner. For the amateur, the tabular cab is a fine trick to have in his bag because it is in some respects more easily handled than the very thin curved top cab. Slabs can be deliberately sliced thin at the beginning, given a brief lapping with 220 grit on both sides to remove saw marks and then penciled. Resawing into blanks must be done carefully to avoid chipping. The blanks are brought to profile and bezeled on the grinding wheel, all other grinding is done on the

lap plate. For large blanks, all processes can be done without dopping up. For small blanks, dopping is advisable before polishing.

Tabular cabs are particularly effective for dense, tough materials where thinness of section enhances their beauty. Jades, agates, watermelon tourmalines are some that are beautiful when handled this way. Large sections of Arizona wood or Brazilian agate can be cut into thin slices and given circular pofiles, the edges can be handled either as double bevel or single bevel. When such specimens reach about 3"-4" in diameter and are meticulously lapped and polished, they are truly a joy to the eye.

The European exhibit cut depicted in the diagram is effective in showing off the beauty of the material. When observed from above, the cab appears to have no bezel at all and the eye is not disturbed in its contemplation of the stone. Cabs of 4" or more in length have been observed cut in this style.

Shapes or Profiles

The number of shapes or profiles that cabochons can assume are limited in number only by the imagination and skill of the cutter. Generally, the commonest forms are ovals (ellipses), rounds, and rectangles. Pendant shapes are also much used and may vary, like the ovals, in length and breadth.

In selecting a suitable profile for cabochons, several rules come to mind which are useful guides. First, do not take any profile which is a slight variation of a regular figure. For example, an oval which is only slightly oval is unpleasing to the eye and also extremely difficult to manufacture without incurring lopsidedness. In the same way, rectangles should definitely look like rectangles rather than looking 'almost' like squares.

The second rule is not to exaggerate to the opposite extreme and make ovals, r e c t a n g l e s, etc., so long and narrow that they become extremely difficult to complete without breakage. Long and narrow ovals and rectangles can be successfully made but dopping must be skillfully done to support the blank throughout its length. Extremely narrow navette shapes are often made from Montana agate and make very elegant ring sets but this same narrowness imposes quite a problem upon the jeweler in mounting the stone and its awkward length makes it a "catchy" ring, easily subject to breakage. Long, narrow, stones are best made for brooches or pendants. Thirdly, the substance being used must be considered in selecting the profile. Long, narrow stones should obviously not be made from fragile materials such as amazonite, lapis, labradorite, etc. It isn't that they can't be made, it is merely unwise to do so since the chances of breakage during processing are excellent not to mention breakage after the stone is finished. Fourthly, if the stone has a pattern feature, the profile must naturally take this into account and be selected with the view of handsomely framing the pattern. Moss agates, fortifications, etc., must be considered with this view in mind. In stones with a uniform overall pattern, this consideration is of no importance.

Irregular profiles as in the "baroque" jewelry currently in vogue are easy to prepare since no marking is necessary. The natural configuration of the rough is taken and care only exercised to avoid hollows which cannot be effectively sanded and polished. Complete section of geodes, nodules, petrified wood, etc., are very effective "as is" in jewelry. In these, the problem is a simple one of lapping only, the outer rim or skin being left in the natural state. Such sections are often used nowadays for pendants, chatelaines, brooches, etc., but should be quite thin if of appreciable diameter so as to reduce weight. Some of the Texas fortification nodules of gay colors are well used this way.

Has the Rock Bug!

Editor R & M:

I am sending in my renewal to your excellent magazine. I would not be without it as I have the rock bug now.

Roger S. Hubbard
Meredith, N. H.

April 3, 1952.

COPYRIGHTED MATERIAL NOT FOR REPRINT

A FIELD TRIP TO REDINGTON CAVE, PENNSYLVANIA

On Sunday, March 23rd, 1952, the Mineralogical Society of Pennsylvania and the Philadelphia Grotto of the National Speleological Society held a joint field trip to Redington Cave at Redington, Pennsylvania.

The cave is in Tomstown Limestone and is at the far end of an abandoned Limestone quarry along the Lehigh River about five miles East of Bethlehem on the property of the Bethlehem Steel Company, now used by their Gun Club.

Part of the cave has been quarried away and, at present, entrance is attained by going down a steep, slippery talus slope of fallen blocks into a room that is roughly circular in floor plan measuring about 50 feet in diameter and about 40 feet high. One passageway extends up to the left for 250 feet. This cave contains many formations and the roof is covered with pencil-like stalactites. Among the most interesting deposits found in the cave are Helictites, an uncommon type of arborescent Calcite.

Despite the pouring rain 100 enthusiastic members showed up, coming from as far as Nutley and Newark, New Jersey and Wilkes-Barre, Pennsylvania.

Under the leadership of Ellen Pietsch and some of her fellow speleologists we hiked through the woods to the entrance of the cave about one-quarter mile from where we parked our cars.

Before entering the cave we were told that we could have any fallen material on the floor, but hanging specimens were taboo.

The entrance to the cave was a hole in the cliff hardly distinguishable from the rest of the rocky landscape. It was a muddy incline about 30 feet long. As we slipped into the darkness we were reminded of Christmas by the small lights bobbing all over the main room.

The muddy floor was littered with loose stalagmites and cave onyx. It was a field day for the cutting and polishing enthusiasts.

Gathering the specimens was comparatively easy, but bringing them up the muddy incline was more difficu't. After several hours of collecting and exploring we slipped and slithered our way up with our specimens in bags.

Charles Yeamans of Irvington, New Jersey, a member of our affiliate the Nutley Club, found the prize specimen, a large stalagmite which was a composite of three grown together; this fact was discovered when he accidently knocked the cap off revealing the cream colored, triplet interior.

Leonard Duersmith was happy to get several excellent Helictite specimens for the mineral section of the Franklin & Marshall Museum of which he is curator.

Gerry Shulman realized why her husband insisted on her wearing a hard hat when a piece of loosened cave material bounced off her skull guard.

While we munched sandwiches some lively trading took place between the members from Pennsylvania and those from New Jersey.

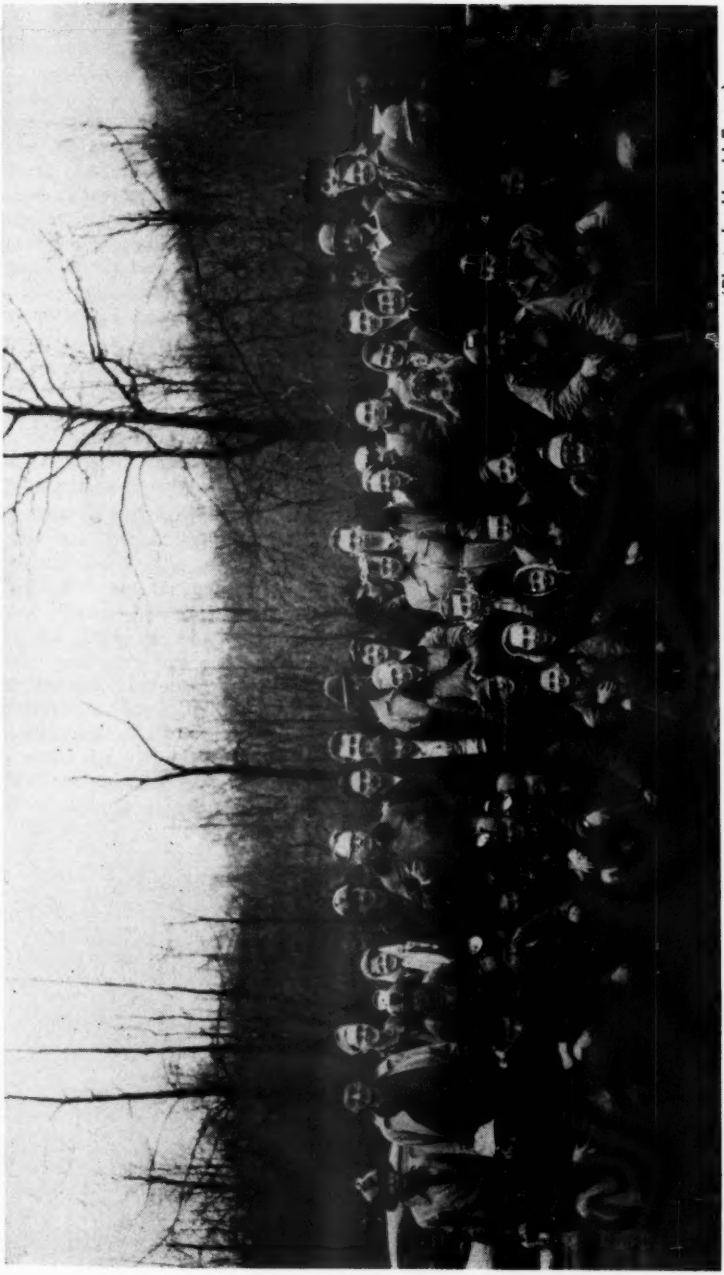
Harold Evans showed several beautiful faceted gems of Brazilian rock crystal and Russell Bell, Secretary of the lapidary section, exhibited a group of cut and polished pieces showing the rough and finished material side by side for comparison.

After Harold, our star photographer, took several pictures of those he could get to stand still, twelve carfuls followed Jim Hart cross-country on an hour's dash to the Kibblehouse Quarry at Perkiomenville, which recently had a tremendous slide revealing the best specimens found in the last three years. Beautiful Natrolite, Calcite, Chabazite and Stilbite were found by those who dug.

This quarry is most interesting, as it is of Triassic Shale baked by a trap rock intrusion. It is rare for Zeolites to occur in shale and the solutions that formed the Zeolites, found here, come up through a fault. The shale is the same mud rock of the countryside with the color baked out and there is Diabase underneath it. The quarry was originally opened as a copper mine.

We left Perkiomenville at six, tired,

(Continued on page 298)



Redington Cave Trip, March 23, 1952. (100 present—48 in the photo.) (Photo by Harold Evans)

RECENT HERKIMER "DIAMOND" HUNTING

By CLAUDE H. SMITH
P. O. Box 291, Geneva, New York

I suppose all of you would like to hunt for the world famous Herkimer "Diamonds" and probably would if the opportunity presented itself. If you live so far away that it is impracticable, it is up to collectors like myself who live within a reasonable distance of this fascinating collecting area to tell you something about today's conditions there and the collecting that is being done.

All in all the Herkimer "Diamond" Region of central New York looks much the same as it has in prior years. True, the hills seem to be a little bit higher and longer, the sledgehammers heavier and the rocks a little bit harder. Just between you and me, I even noticed that my rockhound friends stop and rest halfway up a hill. I always crawl up and stop too, just to keep the poor fellows company.

Last year I spent all my time working in one place about the size of the average living room. Every time the boss would go away for 2 or 3 days and the missus would forget to lock the cellar door, I would check the little boy's piggy bank and if it happened to be full would head for Herkimer County and the same place. Although the rock at this spot is very dense and requires a lot of time and hard work to break, it is good and occasionally rewarded me with a fine specimen. I was especially interested in this place because sometimes extended crystal groups could be found there. These are crystals that formed touching each other in an irregular shaped, fairly flat cavity. Such groups are of course, snapped apart in sledging the rock but they can be reconstructed. Most are composed of 2 or 3 crystals, but sometimes a half dozen or more crystals might be found that could be put back together into a fantastically shaped specimen that is really beautiful.

After several trips to this same place, I began feeling cooped up, like the yoke inside an egg, and even started talking to myself. It got downright annoying listening to such a raspy voice so I decided to give up work for awhile and have some fun exploring. Several journeys were made to various areas of the Herkimer "Diamond" region and side trips taken with two broken down collectors, Donald Hurley of Little Falls, N. Y. and Casper Matthie of Tahawus, N. Y. Of course they come in handy

Donal Hurley waiting his turn to look at matrix specimen being examined by Casper Matthie.

sometimes, like helping me up after I crawl under a fence.

We worked some on the spoil banks across the river from Little Falls. These are composed of rocks that were taken from the Mohawk River when the river was deepened for the canal system. A few good specimens were secured. One in particular was a ¾ inch crystal, so filled with included carbon, that it looks black. We explored the slope on the south side of the Mohawk River across from Little Falls where the cliffs end and searching can be done. It seems that when the city fathers laid out Little Falls, they could find only two directions, up and down, so I wouldn't advise collectors to spend too much time there for the streets are built at anywhere from a 30% slope on up until you have to chisel out footholds so you can make it to the top. I have been going in one direction so long that one leg is considerably shorter than the other. I plan to work in the opposite direction for awhile to even them up. I even noticed that my car is sagging a little on the port side. I don't mind this too much but it makes it difficult to operate because I keep sliding out of the driver's seat.

We made a trip to the Noses that proved quite interesting. The Noses are near Fonda in Montgomery County. Hunting for Herkimer "Diamonds" here is a little different than at other spots, for in the place we visited, the crystals are found in the soil and under the rocks on top of a hill. Apparently a rich crystal bearing formation had been removed by nature in the past and the crystals had dropped down and are now found in the joints and crevices between the jumbled blocks of dolomitic rock and loose dirt that is left on the surface. The crystals here are of fair size and good quality and an extra effort will be made to pay it another visit before winter if at all possible. As there are some rattlesnakes in this region, it is best to collect there during the colder weather. Personally I am not afraid of the snakes but as a precaution I have Don or Casper reach under the rocks first. Not far enough to reach any crystals that might be reposing there, but just in case.

Some exploring was carried on around Salisbury and Diamond Hill, two small settlements several miles north of Little Falls. More work will be done around Salisbury in the future, for it was near here that crystals about 6 inches in size were found in the past. Any work at Diamond Hill would only give meager results for the crystals are small and are

Donal Hurley (standing) and the author at a quarry in Fulton County, N. Y. All rocks exposed are crystal-bearing dolomite.

only found on one small hill. Possibly the micro-mount collector could work here with better results.

Side trips were taken to Timmerman Creek in Fulton County and to a few other streams to look for waterworn crystals. A few were found but nothing that would justify further searching except possibly to find the source. The source of some was found in a roundabout way. It was a thick strata that was full of vugs, some of large size. These cavities were lined with drusy quartz and when one could be found with a crystal in it, the crystal would be singly terminated. The only trouble is that in breaking the rock, the crystals are broken because the cavity lining of drusy quartz is so tough. Occasionally a good crystal can be found that is waterclear. One thing I noticed about these crystals is that quite often one is found in which the termination points to one side of the c-axis, giving the crystal a decided distorted look. As is generally the case in crystal hunting, nothing out of the ordinary happened at this quarry. It snowed a little, the car had one of the flattest tires I've ever seen and I broke a perfectly good belt. This could have handicapped me considerably if I had not had the rope along I use to tie the other fellows up with when I find a place that is rich in crystals. It got a bit dewy. In fact when the dew got up around the floorboards of the car we decided to leave hurriedly.

Further exploring was carried on around Middleville with fair success. Casper and I spent a day working a quarry at Poland. At this quarry it was almost impossible to get good crystals because few are good. Even these fit in the cavities so tightly that most are broken in breaking up the rock. It was noticed that some of the crystals from this locality were quite flat.

Although the exploring for the past year has not been too productive in good cabinet specimens, a few real good finds were made and a few places noted for future exploration. Some new friends were made and little difficulty was experienced in the exploring although I did have a little trouble with Casper. As we walked along looking for crystals sometimes one would be seen ahead of us but in front of the other fellow. Our practice was to wait and see if the other fellow would walk by without noticing it. Not long ago I noticed a real nice crystal ahead of Casper. (My fingers are healing up nicely and should be in shape for the next trip. The crystal was probably full of flaws and quite ugly anyway).

The last time Casper, Don and I got together was on August 10th of last year (1951) when a 3 day trip was made to Little Falls. On this trip we were fortunate in meeting Will and Gerry Shulman from Newark, New Jersey. They had pulled up at Don's in a station wagon

Will and Gerry Shulman obviously enjoying their Herkimer "Diamond" hunting.

that was loaded with everything imaginable. They even had a big canoe on top of the station wagon. We got asking them how they did this and that and they would dig something out and show us. They had collapsible stoves, tables, chairs, tableware, sleeping bags, mattresses, etc. They slept right in the car and I was going to ask them where they went when the weather got too bad but I was afraid they would pull a collapsible log cabin out of the car and start showing me how it went together so I kept quiet. Mr. and Mrs. George Cox and their two sons from Girard, Pa., also stopped in at Don's for a visit. They are very fine people who are more or less just starting the hobby and planned to spend a couple of days at Little Falls looking for crystals. They should make fine rockhounds. It is too bad that after a couple of years they will be like the rest of us, with bifocals and curved backbones.

Plans have been made for at least one more trip into the Herkimer "Diamond" region before winter. As usual I will probably optimistically bring along a couple of bushel baskets and as dejectedly bring them back empty. But who knows, maybe this time big things might be brewing. Hmm—I had better bring my raincoat along, and boots!

OBITUARY NOTICES

It is with sorow that we report the passing of the following mineralogists.

MAURICE A. HAMONNEAU
October 4, 1890 — March 31, 1952

Maurice A. Hamonneau was born in North Africa on Oct. 4, 1890; died March 31, 1952. He was an internationally known bookbinder and curio dealer in Paris. Served as a Captain in the 1st World War for 4½ years. Served 5 years in the French Foreign Legion. Managed the Book Shop of the American Museum of Natural History in New York City for 10 years. Owned and operated the East Coast Mineral Corp in the Endicott Hotel (440 Columbus Ave.) in New York City for the past 3½ years dealing in rare shells and minerals.

M. W. Avery

WILLIAM R. ELLSBURY

Just as we were going to press, word was received of the death of William R. Ellsbury, of Keeseville, N. Y., a charter member and former president of the North Country Mineralogical Club of Plattsburg, N. Y. Mr. Ellsbury died in the morning of May 4, 1952, after a severe heart attack of about ten days prior to his death.

HARRY W. H. STILLWELL

Harry Stillwell, mineral collector and dealer for 60 years, passed away at his home in Rockville Center, Long Island, N. Y., on Dec. 22, 1951. He became interested in minerals when a boy of nine through the curator of the museum at Rutgers University in New Brunswick, N. J., his boyhood home.

A machinist by trade, he ran a general repair and locksmith shop for the past 24 years and in connection with it sold minerals through his Eastern Mineral & Curio Shop. He had a fine private collection of minerals which his wife is selling to nearby interested mineral collectors. Mr. Stillwell collected extensively over the eastern part of the United States and exchanged on a world-wide basis. He had planned to retire and had sold his business last September. His minerals and most other furnishings were packed and ready to be sent to Putney, Vermont, where he planned to live on his son's farm and run a mineral and gift shop on Route 5.

Mr. Stillwell belonged to the Old Timers Club and at various times belonged to other mineral groups, including Rocks and Minerals Association. He was a member of the Queens Mineral Society. For approximately seven years before World War II, he and mineral collectors around Rockville Center ran the Long Island Mineral Club of which Mr. Stillwell had been the founder. Gas rations and the war killed the Club.

His wife and sons helped him in his collecting and enjoyed the great pleasure which he got from collecting. Before the days of good auto transportation, he even freighted specimens back from the quarries to his home. He gave away a great deal to young collectors and got many mineral lovers started on their hobby. Nearby schools were helped by being given good collections from his extensive exchange collection. His very friendly and generous spirit and enthusiastic and captivating personality won many mineral lovers to him as their friends. He was the official examiner for Rocks and Minerals Merit Badge for scout troops for miles around.

Outside of his mineral hobby he loved to play the church organ which he had in his home. And his large family of three boys, three girls, and sixteen grandchildren enriched his later years.

Wm. J. Brooks

MINERAL SHOPPER'S GUIDE

Conducted by CHARLES A. THOMAS
706 Church Street, Royersford, Pa.

Advertisers are invited to send notes or samples of their products. This service is free.

So far, 1952 has been a very busy year, or certainly promises to be, for things pertaining to earth science. Great plans are being made for vacations and mineralogical trips. New Englanders are still suffering slightly from facial muscle fatigue from making faces at the record snows. Florida and the southwest have enjoyed record making tourist crowds. We know of at least one trailer-tourist who could not get up some of our eastern hills because of the heavy load of mineral loot. Ed Gilman, owner of the Lost River Caverns, near Hellertown, Pa. reports great success on his trip to the coast. Cooperation from dealers and collectors is the byword and hospitality the keynote. America IS a great land. Commies, you do not stand a chance.

It is heartening, too, to note the great mining activities which are taking place all over the country. Old mines and new ones are being reopened. We cannot go into detail here, but it is something for the collector to contemplate. A famous California gem region is bustling with activity. Once more, kunzite, benitoite, colorful tourmalines and associated gems are being offered to the trade. Thank goodness such minerals are again being brought to light . . . with difficulty to be sure, and, we hope, profitable. We have a part in this. We can order some of these old time pegmatite specimens and help keep the ventures profitable, thereby assuring new finds and better ones.

In the last issue, we mentioned the Imperial Mines of California, Ltd. They sent us some beautiful tourmalines and kunzite along with some very excellent lepidolite, orthoclase and many other pegmatite minerals from their newly opened mine in the Pala region. Once more, we must acknowledge the receipt of a splendid package from these mines. They are bragging, of course, and small wonder; the packet of kunzite transparent cleavages were so lovely in a clear gemmy lavender. Pieces of perfectly clear yellowish triphane, a spodumene similar to kunzite, yellowish to yellowish green, were also in the gem packet. One large kunzite cleavage and one large triphane were in this package. Neat labels indicated that these beautiful gems came from the San Pedro Mine, Pala, California. The triphane transparent rough crystal is three by one by three-eights inches and a honey. It will be interesting to note their ad and do something about it, but quick. Thank you, Imperial Mines of California, Ltd., for sending us such generous and beautiful samples.

We are happy to have received so great a response to our January-February column. Collectors who have access to material in quantities and quality suitable for sale have sent in samples from all over. Some specimens with real value and some just so-so were appraised and compared with similar and/or better material already on the market. Fairness and honesty prompted these collectors to send the material to us in the first place. They could easily have advertised some of the inferior material without first finding out if it was worth it to the buyer. We raise our hat to those few who did send us their pet finds, only to discover, through advice, that the material was below average in appeal. Some excellent material was received and some mixed good and well . . . not so good. One collector has access to very fine, large masses of petrified algae and some dark brown though nicely patterned cycad fern and wood. The algae ranks with the very nicest. It is translucent in fairly thick slabs and has a nice mottling of algae. It also, oddly, fluoresces in a nice pattern. The wood, not yet positively identified, shows a most excellent ring structure and wood cells so much in demand by collectors. All of the material takes a top grade polish.

One California man sent in some jasper, fine jasper, but just not colored or patterned enough for the polishing trade. However, there was one genuine agate in a fine white with some hint of tan colored bands which is not without some fine possibilities. He has something in this agate and we will watch his progress in collecting and eventual offering of his finds to the trade. We cannot mention all of the material sent in through the column. Thanks to those who did send in material first before advertising it, thereby averting the old two-way headache.

Naturally, fluorescent minerals are either fluorescent or not. However, there should be some minimum or maximum brightness in material offered for sale. Those who part with money for fluorescent specimens expect advertised fluorescent material to fall into a certain class of brilliancy. All, other than Franklin, N. J., specimens, should have a certain inbetween brilliancy and/or oddity of color. Beautifully crystalled specimens may have some edge on massive or crystalline types when both are of a dull reaction. But when specimens are not especially nice in daylight and have a dull red or pink or whatever color they may react under various lamps, then this is the material with questionable value. Some months ago, we received a heavy package of chalcedony and hyalite from Texas. Most of the chalcedony was lovely in daylight and with a gorgeous yellow-green under the short wave. A few lovely pieces looked like carnelian and white agate. Several large rocks were coated with a thin botryoidal chalcedony and a hyalite-like cacholong (semi-opal-like coating, much like hyalite). These specimens were unlovely in daylight but their brilliance made up for such deficiencies under the short wave Mineralight. We have never seen a brighter reaction in such coatings. We hope this material will be marketed soon.

Although, as we mentioned having a set of the Cargille Liquids for helping along the tedious tasks of identification, please do not send in rare or semidistinct material for identification. We just do not have time to go into this and have too many doubts about our own final identifications. This leads up to a point. The U. S. Testing Company is fully equipped to do quantitative and qualitative analysis on your unknowns. Watch their ads in ROCKS AND MINERALS. If it is important, send them a chunk of that stuff that you have a hunch about. It may prove valuable to the war effort. Perhaps you have some material which may not be too important, but about which you may have a deep interest as a specimen for your collection. Send them a chunk with related data as to its occurence.

Mineral collectors and cutters should send for J. C. Filer and Son's mineral, cutting material, lapidary supplies, jewelers' tools and silver findings catalog. It is of great interest to all collectors. Sketches of jewelers' tools are complete. You no longer need wonder where to get such things and what's more they have 'em and can ship immediately.

We happen to know that Arthur and Lucille Sanger have added to their thirty and fifty blank sets some lovely petrified wood from California, Washington, Arizona and Colorado. We polished two woods and can say it is nicer than the usual run.

Young people and beginners want to know what books to buy to help them in their hobby. Naturally, we recommend the lists which dealers have and are advertised in ROCKS AND MINERALS. We urge them not to neglect the Dana editions, the newest of which is Vol. II, Seventh Edition obtainable through Wiley and Sons, Inc., New York City. But, to keep up with what's new, we must read all that there is (within our capacity) on things minerals. A point in mind is the LAPIDARY JOURNAL. Whether you are interested in lapidary work or not, there are many things of interest in this magazine, printed in Palm Desert, California. Then, if this is not enough grist for your mill, there is the meaty paper MINERAL NOTES AND NEWS, the official publication

of California and the American Federations. Even your daily or weekly paper has many items of local mineral news and we cannot resist keeping a weather eye open for juicy bits of mineral information in them.

Fluorescent addicts who have used the short wave lamps such as the S L 2537 Mineralight and the V 44 type which uses the C 9863 or similar filter will have noticed that such filters lose one half or more of their original effectiveness after a few years of hard use. New filters may be obtained, but if these prove too expensive, the badly solarized filters may be rejuvenated for 50¢ per square inch and will then give your old lamp a new outlook. Mor-Lite, whose ad appears on page 189 in the Mar.-April issue of this magazine, will restore your old filters. We sent them our smudged filters and we are well pleased. Send 'em yours. Smudged filters cannot be cleaned up with soap and water by rubbing. The solarization is deeper than the surface and polishing helps but little. One way to test the filter for this is best done by using a new filter and then the old one on Good Springs hydrozincite. The oldy will certainly show the normally blue fluorescent material as a dull grayish blue. If your Good Springs hydrozincite does not come up a brilliant blue (without comparing it with a new filter) then your filter is solarized. Some Franklin reds and pinks will be a brownish red or lavender pink, but should react vividly red and bright pink in that good stuff.

Enthusiasm is a wondeful thing. There is no lack of it in the fast growing group called the Eastern Federation of Mineralogical and Lapidary Societies. We call all collectors' attention to the coming Fall convention to be held in Newark, N. J. Dealers, who may be interested in displaying their wares, may contact Mr. William B. Aitken, Chairman of commercial exhibits, 63 Lexington Avenue, Westwood, N. J.

Friends, have you ever seen those beautiful magnifying paperweights? Some show sea-horses with shells and sea-fans, but you haven't seen anything so gorgeous as Mr. Wilfred C. Eyles' paperweights made with real gems. It is a lovely thing and such a clever way to show the sparklers of our great west. Mr. Eyles is an artist, to say the least. If they were not already advertised in ROCKS AND MINERALS, I would insist that these lovely things be made available to collectors all over the world. Topaz in fine sharp crystals, apatite in a delightful clear color, chrysocolla in vivid blue, red garnet, fiery vanadinite, opals, amethysts of royal purple, rose quartz, chalcopyrites, and perhaps a half dozen other varieties of real gems, are magnified so resplendently under the rounded glass paperweight. Only $2.50? Read his ad on page 188, the Mar.-April issue and see for yourself.

(Eyles and C. A. Anderson have formed a partnership — the Rock House. See their ad in this issue).

We have no extensive cabochon or gem collection of our own, but we are getting there. One of our favorites is bloodstone from India. Why do we not see bloodstone in those framed collections of cabs? Of course, we have not seen too many fine cab collections, and no doubt there are many that do have this beautiful gem represented. Bloodstone is a green plasma with bright red specks which is a natural and beautiful color combination. It takes such a high polish, too. See Plummer's ad and hurry, for there may be so little left after many cutters and polishers take the hint.

How many of us have heard the gem cutters' lament that dioptase does not often show up in crystal sizes suitable for faceting even a small gem? Burminco did not miss the opportunity to bring back some extra special African dioptase crystals on dioptase. They are in excellent rich dioptase green and some crystals are at least ¼ inch in diameter. Splendid specimen material, too.

Kids are so loveable. Sure, they get in your hair at times, but not when they are interested in rocks and mnerals. We have seen children get the brushoff on

field trips, when their inquisitive minds get going and when they ask the direct questions about specimens found Some oldsters have been approached by children, with sometimes disastrous effects on these tomorrow's collectors. Let's not deal out the brushoffs, and if we have been guilty, then, perhaps we may atone for our sins by giving some child one of those inexpensive mineral sets so frequently advertised in this magazine.

Once in a while we find arfvedsonite at our favorite zeolite quarry near Perkiomenville, Pa. It is not always easy to spot it or be positively sure we have it and not the platy type of magnetite. To be absolutely sure, some blowpipe work is necessary to determine the sodium content of this black iron mineral. It is not unattractive when found with epidote and it is rare enough to collect for that specimen cabinet. Perhaps the unusual name, as well as the fact that this mineral is not too plentifully scattered over the land, makes for the uncommon interest in it. Many catalogs list this, if you are interested. Ward's, Minerals Unlimited, Schortmann's, Filer and Son, Ford's, John S. Albanese, and a host of other ROCKS AND MINERALS advertisers, should have this mineral in stock. You can be sure of your arfvedsonite if you buy it to compare with the one you have found or just wish to complete your collection.

Many thanks to Mr. W. C. Woynar of San Diego, California, for those kind words in his letter to the M. G. S. He says, in part, "I make constant use of your department in purchasing specimens for my private collection and have always received specimens with which I am more than satisfied." The M. S G. sincerely hopes Mr. Woynar will be able to locate baskets full of superb kunzite specimens such as, for instance, the kind shown in the now famous December, 1950, issue of NATIONAL GEOGRAPHIC MAGAZINE. Mr. Woynar is associated with the Imperial Mines of California, Ltd. Good luck, Mr. Woynar and keep us posted on what's new from those old pegmatites.

The Technicraft Lapidaries Corporation of 3560 Broadway, New York City, deserve special mention at this time. We may not be an expert gem cutter, but we know good material when we see it. Technicraft sent us a packet of gem rough and rough slabs for examination and use. Every piece is a beauty and great expectations in working up these fine pieces will no doubt keep us on our toes. India moss agate, aventurine, amethyst, jadeite, malachite, opal and turquoise, all of top quality were sent. We wish all cutters could see this material. Therefore, we urge all gem lovers to send for a similar packet of gem material so that they too can work up this fine asortment. They say, one can get anything under the sun in New York City and we are beginning to believe it. Technicraft takes prompt action as soon as an order is received. Their catalog shows prices as low as possible for the finest . . . and about everything you might need is listed and carefully priced downward so that a nice order will save quite a good amount of money.

Full of Enjoyment!

Editor R & M:

I received the Jan.-Feb., 1952, issue of your magazine and am pleased with it.

I enjoyed the details of your tour of Rhode Island. It was ingenious and thoughtful in the manner that you described and mapped your trips, even giving the mileage and compass directions.

Taking the magazine along for reference I had no trouble at all in finding the localities you described.

I spent one whole day just at Diamond Hill.

I found just about the same minerals that you described, but at the Conklin Limestone Quarry, I found pure white asbestos, beautiful material, also a fine specimen of white limestone just covered with dendrites.

I enjoyed reading your fine magazine and enjoyed a pleasurable tour of Rhode Island.

Harold M. Curtis, Jr.
April 21, 1952. Stoughton, Mass.

An Enthusiastic Reader!

Editor R & M:

I am enclosing a $3.00 check for a year's subscription to the most interesting of all magazines. How many of us wish it were published monthly!

An enthusiastic reader,
Marian Harris
March 15, 1952. Tucson, Ariz.

THE SAND COLLECTOR

Conducted by PETER ZODAC, Peekskill, N. Y.

Items on interesting sands wanted. Please send them in.

Rock Crystal Sand from Punta Arenas, Chile

Another letter has arrived from our good friend stationed down at the southern tip of South America. It is dated Feb. 10, 1952, and is from W. T. O'Gara, ENAP Dept. Paleontologia, Cassilla 26D, Punta Arenas, Magallanes, Chile. Part of the letter reads:

"My particular problem here is to make a geological correlation between the exploratory well El Ganso No. 1 and two or three others here in the vicinity. It is a difficult task because we have such a lot of thrust faulting and other disturbances of the rock that we aren't sure at all times exactly what series of formations we are drilling in. In this well at times in the cuttings I have found some interesting micro-mineral specimens and so can do a little collecting while I am at work. The minerals usually are pyrite and quartz (one quartz crystal had a nice oil bubble in it—the only oil we so far have seen in this well). Some very interesting quartz crystal forms help me to keep up with mineral collecting even here. I have in progress an article for your sand department, but of late haven't had time to complete it."

Mr. O'Gara is connected with an oil company and the El Ganso No. 1 is a deep oil well now being drilled in Punta Arenas.

Beach Sands from Uruguay

Quoting further from the above letter, Mr. O'Gara continues:

"My vacation is due in March and I hope to visit Montevideo, Buenos Aires, and Asuncion in Paraguay, if possible. I don't suppose I will get a chance to collect much but will send you sand samples from as many places as I can. I hope to visit the museums in those cities and buy as much geological literature as I can to complete my library on the geology and paleontology of South America. March is the half way mark on my two year contract, and I hope to get a job in some other South American country such as Peru or Venezuela, or perhaps Colombia. The climate here isn't bad, but the high cost of living and the lack of food makes me want to get farther north."

Two samples of beach sands from Uruguay have been received from Mr. O'Gara. One is from the bathing beach in Montevideo, the capital and largest city of Uruguay. It is a dark gray medium grained sand and all quartz (colorless, smoky, and white).

The other sample comes from the beach at Punta del Este, a popular bathing beach 3 miles east of Maldonado or 93 miles east of Montevideo. This is a dark brown, medium grained sand consisting chiefly of quartz (brownish, smoky, colorless) with some colorless flakes of muscovite; tiny white and bluish sea shells also present. Maldonado is a small port on the Atlantic Ocean whose chief industry is seal-fishing on nearby Lobos and Castelles Islands.

River Sand from Buenos Aires

Buenos Aires, the largest city in South America, is the capital of Argentina and is situated on the Rio de la Plata (River Plate), The river is about 100 miles long and the mud and sand give it a thick, brownish color.

A sample of sand from the river, taken at the bathing beach in the city, was received from Mr. O'Gara. This is a medium grained dark brown sand consisting of quartz (smoky, brownish, white), bits of red brick, black coal, broken sea shells (white), a little black magnetite, etc. The brown color of the sand is due to quartz being coated with brown mud.

Garnet Sand from Lake Clear, Ont., Canada

About a year ago we received from Mrs. W. H. Thomas, 145 E. Gorgas Lane, Mt. Airy, Philadelphia 19, Pa., a sample of garnet sand from Lake Clear, Ont., Canada. This is a dark red medium grained sand and consists of red garnet

with some black magnetite and rose quartz. It is a beautiful sand.

Beach Sands from New Jersey

It's wonderful to have friends! A case in point is the Rev. Wm. J. Frazer, 625 Main St., Moosic 7, Pa., who has supplied us with many samples of most interesting sands. A card received from him a few months ago reads:

"One of my church members brought me, for you, samples of beach sand from Brigantine Beach, N. J., and Asbury Park, N. J.

"The man who did it is Harold Baird, 907-5th St., Moosic 7, Penn., in case you want to thank him. I don't need any word, for he'll tell me that you've written to him."

The first sample, from Brigantine Beach about 3 miles N/E of Atlantic City, Atlantic Co., N. J., is a dark gray, fine grained sand consisting chiefly of quartz (colorless & smoky) with red to dark red garnets.

The other sample, from Asbury Park, Monmouth Co., N. J., is dark gray medium grained sand consisting chiefly of quartz (colorless, white, smoky) with a few grains of black magnetite.

Magnetite Sand from Texas

About a year ago we received a nice sample of magnetite sand from Frank Duncan, Box 63, Terlingua, Texas. He had panned the sand out of the Rio Grande River at the old town of Lajitas (pronounced Lah-hee'-tass), Brewster Co., Texas. The sand is all black magnetite with a few grains of red garnet.

Lajitas is in the extreme S/W corner of Brewster Co., (almost on Presidio County line) on the Rio Grande which river is the boundary between U. S. and Mexico.

Beach Sand from Mexico

Roy Shoemaker, 1827 W. Drescher St., San Diego, Calif., who, while on a trip into Mexico, was kind enought to collect for us 2 samples of sand. Both come from Rosareto, Lower California, Mexico. Rosareto is a small town on the Pacific Ocean, about 15 miles south of Tijuana (Mexican town on the California border).

The first sand comes from the beach at Rosareto. It is a dark gray, fine grained sand consisting chiefly of colorless quartz with some black magnetite and colorless zircon (fl. orange under the Mineralight).

The other is a stream sand and comes from a small stream about 2 miles from the ocean. It is a dark gray coarse sand consisting of quartz (smoky, brownish, also gray chalcedony), red hematite, brown limonite, black magnetite, with reddish granite and other rocks.

"Rosareto Beach, on the Pacific Ocean, is a very popular beach resort here on the west coast. Population is 250," a note from Mr. Shoemaker.

Quartz Sand from Nevada

Amel Priest, Peru, Iowa, sent us not so long ago, a sample of sand which he had collected while on a trip west. The sample is a brownish, fine grained quartz sand (all brown quartz) and the locality is Las Vagas, Clark Co., Nev.

Beach Sand from Japan

On April 15, 1952, we received an interesting letter from Pfc. Robert M. Strang, U. S. Army in Korea. Part of the letter reads:

"Just a short note from here, the Karatsu Seaside Hotel, Japan, where I am spending a couple of days of my 5 day (R & R) Rest and Recuperation leave that every fighting man in Korea gets sooner or later. We flew over from Korea to Kokora, Japan, where we were converted from combat to civilian soldiers. Then we took a train (3 hrs. ride) to Karatsu and I'm sure glad that we decided to stay here as the hotel is swell —right on the Japan Sea, too! The food is swell, also. The hotel is run by the special service of the U. S. Army.

"The enclosed sample of sand is from the beach here—which is on Karatsu Bay of the Sea of Japan. Sorry it is only a little bit but I was afraid to send more for fear the envelope wouldn't stand it. Hope it gets through."

Private Strang, whose home address is 1116 Elm St., Peekskill, N. Y., is a young friend of the Editor of R & M.

The sample sent is a grayish medium grained sand, consisting of quartz (smoky), albite, (white), with tiny amounts of black tourmaline.

Karatsu, a town on the northwestern coast of Kyushu Island, faces Karatsu Bay. The town is noted for the manufacture of porcelain ware.

Beach Sand from Rockley Beach, Barbados

Relatives are very important as oftentimes you can call on them for favors. So, when we wanted a sample of sand from Barbados, an English possession in the Caribbean Sea, we just called upon a distant cousin to supply it and she did. Mrs. Grace Mayers, Melbourne, Hastings, Barbados, sent us a sample from Rockley Beach, on the southern coast of the Island. "It's a lovely bathing beach and quite popular lately. I don't know if it is on the map yet, as it was years ago—the tide came in and it was no more. But the tide has gone out and it is once more a beautiful beach," — from her letter dated April 14, 1952.

The sample is a cream colored, coarse grained sand consisting chiefly of coral (white, pink, brown) with some remnants of sea shells.

We have learned recently that we have another cousin in Barbados, a young lady named Miss Marjorie G. Bourne, who seems delighted to send us sand samples. Two samples are on the way and she will try to obtain more from other parts of Barbados, so in future issues we will be describing a number of sands from this West Indian island.

Beach and Magnetite Sand from Lake Erie

At Erie, in Erie Co., Penn., is Presque Island State Park on Lake Erie. There is a fine bathing beach in the Park and 2 samples of sand were collected for us by Richard L. Cox, 228 Elkcreek Ave., Girard, Pa.

One of the sands collected is the ordinary beach sand. It is a dark pinkish fine grained sand consisting of garnet (pinkish to red which gives the sand its color), quartz (colorless, brownish), magnetite (black), and some zircon (colorless to brown and fl. orange).

The other sample is magnetite sand—fine grained black magnetite with tiny amounts of quartz. Much of the magnetite occurs in concentrated layers on the beach but to get a pure sample it has to be picked up with a magnet.

Singing Sands from Wisconsin

P. J. Pieterek, 512 Beaser Blved., Ashland, Wisc., informed us not long ago that "we have a singing sand near, and would like to know if you would want some?" Of course, our reply was "Yes" and a nice sample was received. His letter dated Dec. 29, 1951, reads:

"I finally got the singing sand from Sioux River Beach near Washburn, Wisconsin. As one walks over the beach, the sand gives off a crunching singing noise and this is why folks about there call it the singing sand. The wife likes to sit on the beach and run her hand over the sand and to hear its sound.

"We have spots on the beach near here that has quite a bit of black magnetite sand."

The sand is dark brown in color — all brown quartz and medium grained. It gives a peculiar harsh sound when rubbed between the fingers; also when allowed to slide on paper.

Washburn, in Bayfield Co., is a little town on Lake Superior. A map, showing the location of the Sioux River Beach was also sent in by Mr. Pieterek — a most thoughtful gesture. On the map we note that the Sioux River Beach is in the little hamlet of Sioux, about 4 miles north of Washburn. Sioux is also on Lake Superior.

Beach Sand from Catalina Island

In the March-April, 1952, R & M, p. 138, a number of minerals were described that had been collected on Catalina Island by Sol Shalevetz, 220 W. 5th St., Los Angeles, Calif. Before the issue came out, a small bottle of beach sand from the Island arrived from Richard L. Sylvester, 154 Parkside Ave., Syracuse 7, N. Y. The sand had been collected on July 27, 1951, by Mr. Sylvester when he and Mrs. Sylvester made a short visit to the Island.

The sand is dark gray in color, is fine grained, and consists chiefly of quartz

(brownish, smoky, milky, colorless, yellowish) with some garnet (red), epidote (green), hornblende (black, lustrous), magnetite (black, dull) etc. It was collected on the beach at Avalon, on the S/E coast, which is the largest settlement on the Island. Avalon, a California resort, is famed for its sea gardens .

Residual Sand from Massachusetts

This is a coarse grained red sand consisting chiefly of quartz (heavily stained deep red) with a few grains of black magnetite. "It is the residue from rotting conglomerate of the Wamsutta series (upper Carboniferous) at South Attleboro, (Bristol Co., Mass.) on U. S. I," writes Arnold M. Dixon, Chestnut St., RFD 403, Foxboro, Mass., who supplied the sand.

River Sand from Alabama

On the northern bank of the Tennessee River (on the Lauderdale County side) near Florence, Ala., is a deposit of brownish sand. The sand is all quartz, medium grained, and varies from smoky to brownish in color. The Tennessee River, at this point, divides Lauderdale and Colbert Counties.

Beach Sand from Delaware

O. A. Pickett, 108 Briar Lane, Newark, Del., has sent R & M a nice sample of beach sand from Bethany Beach, Sussex Co., Del. This is a fine grained gray sand and consists entirely of quartz (chiefly colorless — many grains are clear and transpartent, also brownish, milky and smoky).

Bethany Beach is a summer resort on the Atlantic Ocean.

Beach Sand from Lake Mille, Minn.

Some few months ago we received 2 generous samples of beach sand from Ivan Sackman, 620-4th St., So., St. Cloud, Minn. The sand comes from one of Minnesota's famous lakes, Mille Lacs, a large body of water the southern half of which is in Mille Lacs County; its northern half is in Aitkin County.

Both samples come from a locality known as Carnelian Beach, near the town of Wahkon, Mille Lacs Co., Minn.

One sample is a dark brown fined grained sand consisting chiefly of quartz (brownish, milky, clear) and some black magnetite. This sample was taken from the floor of a "sand blow" (about 10 or 12 inches below the surface) in the dune-like shore line.

The other sample comes from the surface of the "sand blow," just as it can be scooped up. It consists of sand, pebbles, bits of drift wood, etc. The sand is dark brown, coarse grained, and consists chiefly of quartz (brownish, milky, smoky, clear, gray chalcedony), and black magnetite. The pebbles consist of basanite (black), smoky quartz, brownish quartz, mica schist, gray granite, brownish porphyry, etc.

Lava Sand from Hawaii

A few months ago we received two very interesting sands from Rev. Wm. J. Frazer, 625 Main St., Moosic 7, Penn. In his letter dated Nov. 10, 1951, appeared this paragraph:

"Two small bottles of sand are coming to you under separate cover. I'm sharing with you what I received from Harry E. Hoon, Head of the Service Department of the Audubon Jr. High School, 3055 E. Blvd., Cleveland 4, Ohio. He was in the church which I served during August vacation."

One of the samples labelled "Black Sand" comes from the world famous Waikiki Beach at Honolulu, Oahu Island, Hawaii Islands. It is a deep black coarse grained sand, the grains are entirely lava — all deep black in color and many are deeply pitted.

Gypsum Sand from New Mexico

John N. Trainer, Brewster, N. Y., America's famous garnet collector, sent R & M a 3/4 lb. sample of pure gypsum sand from the noted White Sands National Monument, near Alamogordo, Otero Co., N. Mex. This is a medium grained cream colored sand although the individual grains are all white. The White Sands National Monument is a dazzling fairyland 30 miles long and 9 miles wide, a billowy sea of pure white gypsum sand.

The 2nd sample received from Rev. Frazer (see Lava sand from Hawaii) was

also gypsum sand and it too comes from the White Sands National Monument. But its exact locality is not known. It is fined grained, white in color, and consists entirely of white gypsum.

Beach Sand from Nome, Alaska

This is a dark gray, fine grained sparkling sand (the sparkling is due to the preponderance of silvery-white muscovite flakes). It contains also lots of quartz (colorless, smoky, brownish) with some black magnetite. The sand from the beach at Nome is said to be gold bearing, but we failed to spot even one grain. The sample was sent by William Freiter, 210 E. 2nd Ave., Anchorage, Alaska.

Nome is a small port on the north shore of Norton Sound (Bering Sea), Alaska.

Black Sand from Adak, Alaska

William Freiter, 210 E. 2nd Ave., Anchorage, Alaska, sent us another and it is a unique sand that comes from Adak Island, Alaska. It is a bronzy-black medium grained sand that consists chiefly of black magnetite and lustrous bronzy pyrite (many of the pyrites are minute lustrous cubes); some white quartz also present. Writes Mr. Freiter, in his letter of Nov. 25, 1951:

"I am sending you a little sand from Adak which I still have. It comes from the concentrates of my panning."

Adak is one of the small islands in the Aleutians (a group of about 150 islands extending as a chain in a southwest direction from the mainland of Alaska).

Desert Sand from Dry Camp Siding, Calif.

This sand has been send in by Mrs. Lera A. Hegel, 1945 Magnolia Ave., Los Angeles 7, Calif. It comes from Dry Camp Siding, Riverside Co., Calif. (Mile Post 601.5 on the So. Pacific R. R.). This is a wind blown sand from the Indio Desert. It is dark gray in color, medium grained, and consists chiefly of quartz (smoky, brownish, white) with some black magnetite and a few bronzy flakes of mica.

Creek Sand from Colton, Calif.

This is a dark gray coarse grained sand consisting chiefly of quartz (smoky, brownish) with feldspar (pinkish, white) with some black magnetite; some of the magnetite is imbedded in the quartz and feldspar.

The sand comes from Warm Creek, one mile east of Colton, San Bernardino Co., Calif., (Mile Post 539.95 on So. Pacific R. R.). The stream originates in the foothills of Mt. Baldy.

This sand was sent in by Mrs. Lera A. Hegel, 1945 Magnolia Ave., Los Angeles 7, Calif.

Beach Sand from Revere, Mass.

This is a dark gray, fine grained sand consisting entirely of quartz (smoky, brownish, white). It was collected on the beach at Revere, Suffolk Co., Mass. Revere is a city port on Boston Bay.

The sample was received from Arnold M. Dixon, Chestnut St., RFD 403, Foxboro, Mass.

Beach Sand from Manomet, Mass.

Manomet in Plymouth Co., Mass., is a little town on Cape Cod Bay. From a beach here, called White Horse Beach, we have a sample of sand which is gray in color, fine grained, and consists entirely of quartz (chiefly light smoky with some colorless, brownish). The sample was sent by Arnold M. Dixon, Chestnut St., RFD 403, Foxboro, Mass.

Arkose Sand from Ada, Okla.

An arkose sand is one rich in feldspar grains. This specimen, which comes from near Ada, Pontotoc Co., Okla., is brown in color, coarse grained, and consists of quartz (smoky) with feldspar (pinkish); brownish clay some of which coats both the quartz and feldspar is also present.

This interesting sample was sent in by E. H. Sarles, 2026 Elm Ave., Norwood, Ohio.

South Dakota Recognized!

Editor R & M:

Enclosed is $3 for which please send me ROCKS AND MINERALS for 1 year. I am changing my subscription to your magazine because of all the mineral and lapidary magazines, R & M is the only one which recognizes the existence of our wonderful State of South Dakota.

Mrs. Warren M. Lee
March 28, 1952. Vermillion, So. Dakota

CLUB AND SOCIETY NOTES

Attention Secretaries—Please submit neat copies. Give dates and places of meetings. Check names for correct spelling.

Eastern Federation Convention

If strange sounds are coming out of New Jersey these days it is because the Newark Mineralogical Society, the Newark Lapidary Society and the North Jersey Mineralogical Society are moving heaven and earth to give the Eastern Federation and its visitors a Gem and Mineral Show next October that will make the rest of the rockhound world pop-eyed with envy.

The Essex House in Newark, N. J., will be the scene of the excitement, and the big days will be October 9-10-11, 1952, with October 12 set aside for a field trip to Franklin, N. J. It is the Franklin trip that has everyone wondering. Those responsible simply look smug and mysterious and refuse to say anything more than "Surprise."

An energetic committee, drawn from the three host societies, has been hard at work for several months planning the details incidental to each feature of the three day session, and so much interest has already been shown on the part of participating clubs, exhibitors and speakers that all those who plan to attend are urged to make their reservations early.

Yavapai Gem and Mineral Society

Many friends and members of the Yavapai Gem and Mineral Society attended the sea shell exhibition and talk arranged by Vice-President Floyd Purviance and given by President Ernest E. Michael at the meeting of the Society held Tuesday, April 1, at St. Luke's parish house, 114 South Marina Street, Prescott, Ariz. In the display of choice specimens from his collection of 5,000 shells, President Michael had the help of his wife, former Secretary-Treasurer.

After the reading of the minutes by the present Secretary-Treasurer, Mrs. Madeline Bettencourt, the next field trip was discussed. H. G. Porter, field trip chairman, said he would lead a party to the crystal beds of Date creek on Sunday, April 27, starting from the Plaza, opposite the Studio Theatre.

Michael presented four shell door prizes from his collection. These were won by Agnella Young and Gary Purviance (juniors) and Gerrie McGowan and A. Claridge (seniors).

In his talk, Michael said that the study of shell life was known as conchology from two Greek words—"conch" (shell fish) and "ology" (the science of). Conchologists, he stated, know of about 100,000 species of shell life. No one man could hope to make a complete collection but he had heard of one who had 70,000 specimens.

Speaking of the mollusca family, he mentioned its five divisions — cephalopods, gastropods, scaphopods, pelecypods and amphineura.

These names, Michael pointed out, indicated the variations of the foot or locomotive organs. The cephalopods have 8 to 10 arms —the squid, octopus or devil fish, and the nautilus, to name three. Their method of locomotion consists of taking water in by a syphon and expelling it with great force to the front. The gastropods or stomach crawlers get along by the wavelike expansion and contraction of their lobe or mantle.

Michael exhibited a number of cameos cut from sea shells. The best cameo cutters are found in Italy, where the art has been handed down from father to son for many hundreds of years.

Librarian Harold Butcher announced that a new book had been added to the Society library—"Strange Story of Our Earth," by A. Hyatt Verrill, noted for well-written and attractively illustrated volumes dealing with nature in its many aspects. Among Explorer Verrill's achievements was the salvaging of a Spanish galleon sunk in the West Indies in the 17th century.

Harold Butcher
P. O. Box 937
Prescott, Ariz.

Southwest Mineralogists

The Southwest Mineralogists Inc. had at their March meeting a very interesting program. It was the last of a series of three, entitled "Our Restless Earth" by W. Scott Lewis; narrated by Mrs. Arthur Rich.

This year we have decided to move to larger quarters for our annual show as the exhibits have grown too large for our present hall.

This year we are showing at the South Ebell Club, 7101 So. Menlo Avenue, Los Angeles. The show dates are the 26th and 27th of April.

Next month (April 14th) Frank Trombatore will show colored slides of his recent trip to Alaska.

Our meetings are held on the second Monday of each month, at the Palestine Masonic Temple at 41st Place and Figueroa Streets, in Los Angeles, Calif. Everyone is most cordially invited to attend.

Frank Trombatore
Corr. Secretary Pro Tem
338 Pomelo Ave.
Monterey Park, Calif.

Chicago Rocks and Minerals Society
February Meeting

"Where the Florida beaches come from" was the topic, Dr. George Otto, consultant geologist used for his informative lecture at the 6th birthday anniversary party at the last meeting of the Chicago Rocks and Minerals Society on Feb. 9th.

Florida being devoid of mud, shale and clay, consists largely of sand, sandstone and limestone. Erosion taking place farther north takes place faster than the streams can carry it away, that which is carried out to sea is picked up by a counter current and deposited along the shore line of Georgia and Florida.

It is a pleasure to listen to Dr. Otto and hope we may soon be favored with another visit from him.

The display tables included exhibits which were outstanding in variety and beautifully arranged by Bessie Radovich, Mrs. Oliver, Mary Riorden, Ann Spector and Mr. Sinberg.

Mrs. Ann Spector and her able committee served delicious refreshments and all visitors and members had a nice time.

A field trip to the Chicago Museum of Natural History, to Hall 37, in January, was an enjoyable and educational one.

March Meeting

On March 8th the Chicago Rocks and Minerals Society had as lecturer Prof. Clarence R. Smith, head of the Physics Department of Aurora College, when he spoke on Mastodons prior to a field trip to the Aurora area later in the Spring. Mastodon bones were found in marl deposits in an old post-glacial lake bed in Aurora, Illinois. They were found by W.P.A. workers digging a lake for a public park. The marl was overlaid by variable thickness of humus soil. The skeletons, while incomplete, were in excellent preservation because of lime in the marl. At the edge of the lake bed they found the skeletons of three trumpeter swans. The trumpeter swans are nearly extinct at present, but history tells they were plentiful along the Mississippi and the northwest country a 150 years ago.

Roger V. Wilson displayed an excellent exhibit of polished geodes and nodules from southern New Mexico.

The members, who attended, "Open House" at the Edwin Goff Cookes on Sunday, Feb. 24th, had a most enjoyable time.

April Meeting

Mr. Hugo Herschend of Wilmette, Illinois, who claims he is not a speleologist, but owns Marvel Cave, near Branson, Missouri, was guest speaker for the Chicago Rocks and Minerals Society, Saturday, April 12th, at 8 P.M.

The cave with a year round temperature of 55° is situated in the area around which Harold Bell Wright wrote his popular story "Shepherd of the Hills." It has 32 miles of explored cave and is third largest in America.

Mr. Herschend, assisted by his son, Jack, with spectacular colored slides gave us a glimpse underground, through the solemn and impressive natural entrance, along trails of twinkling lights. The main dome is 300 ft. long, 200 ft. wide and 200 ft. high. Along the way one can see various stalagmite formations resembling such figures as the "Liberty Bell' which is 55 ft. high and 120 ft. in circumference — another resembles a turkey and many others.

In Waterfall Canyon, 585 ft. underground, water from the Lost River flows over stalactites of lovely formations to fall 50 ft. below similar formations into large pools.

Very interesting and fine exhibits of rocks and minerals, cabochons and jewelry were displayed by the Thomases, Mr. Henry Schaefer and Mr. Knuth Larsen.

"Open House" at the Grand-Girards was enjoyed by many.

Bertha J. Alberts, Publicity
310 Washington Blvd.
Oak Park, Illinois

Pacific Mineral Society

Mr. Loren Whitelock, a member of the National Speleological Society, brought us colored photographs, bacterial information, and emphasis on mineral formations in caves; the Lost Soldier's Cave of Sequoia Park, California, in particular.

This group of hardy explorers brave the dangers of the unknown crawlways and dark slippery chimneys and with the aid of cables and 250 foot ropes arrive at such wonders as the Starlight room, whose travertine draperies, delicate spars, and massive stalactites are the reward.

They often spend three or four days underground in their studies and research, mapping and photographing. The Lost Solider's cave has been the particular field of this group recently, and due to vertical and slanting fissures some beautiful formations have been found.

The colorings due to iron and calcitic variations, or bacterial plant inclusions, occur in banded patterns sometimes bordering on the fantastic.

In other rooms much dolomite and some onyx was photographed. Some sharp and feathery crystals were observed, but much of the material was massive.

Underground streams have left traces, especially where there was a whirlpool action.

The next field of the Pacific Society will be to a location about 40 miles east of Indio, California. We expect to collect geodes and chalcedony with interesting inclusions.

Our display chairman, Mr. Heghinian, presented Mrs. Allard whose collection of gem quality necklaces amazed us. In each case the natural mineral was shown with the finished product. Some of these were rose quartz, rhodonite, malachite and amber.

B. Royer
1234 W. 41st St.
Los Angeles 37, Calif.

The New York Mineralogical Club

At the regular meeting of the Club on January 16, 1952, held in Room 403 at Schermerhorn Hall, Columbia University, New York City, the speaker of the evening was Mr. Frank A. Lewis, analytical and consulting chemist and mineralogist, who discussed "The Rare Earth Minerals and Their Constituents." Mr. Lewis was formerly Curator-in-Charge, Division of Mineralogy, Natural History Museum, San Diego, California (1933-1937), and later, Chief Chemist, U. S. Naval Medical Supply Depot, Brooklyn, N. Y. (1937-1942). Subsequent to this time, he became an independent consulting chemist, and carried on in the field of analytical chemistry and in extensive research involving the study and separation of the rare earth elements. Mr. Lewis is one of the foremost authorities and researchers in this field, and is probably the foremost producer of high purity rare earth compounds. He gave his fellow members attending a fascinating insight into the sources, techniques of separation and production, and properties of these still mysterious elements — "mysterious" in the sense that so little pure material has ever been available for study and research. This, of course, is due to the rarity of the rare earth minerals, and the extreme difficulties attending the separation of these rare earth elements.

The rare earth minerals are usually of unprepossessing appearance, and they are by no means as abundant as the literature may lead us to believe. In addition, the reported analyses, some of which are fifty to sixty years old, are unreliable in most instances. The minerals are widely distributed, but the deposits are lean and spotty, and never occur in such amount as to permit wholesale extraction for large quantity production. Monazite is the most abundant mineral utilized in the processes involving the separation of the cerium-group members (lanthanum, cerium, praseodymium, neodymium, samarium) and thorium, and these members are in far greater abundance than the intermediate group members (europium, gadolinium, terbium) and the yttrium-group members (yttrium, dysprosium, holmium, erbium, thulium, ytterbium, lutecium). For the latter group of elements, minerals such as gadolinite are utilized, in which these much rarer members are predominant; and the mineral is sufficiently available to permit a "large scale" separation. Some gadolinites, notably from southern Norway, may contain as much as 45% of the yttrium-earths, of which 80-85% is yttrium.

The wrong minerals are often chosen by some workers, and they become discouraged at the onset, before the real work involving the prodigious task of the actual separation of the elements is hardly begun. Monazite, for example, is much better to work for the cerium-group elements than allanite, even though thorium is present, since its initial processing is easier and less costly. Gadolinite is better to use than blomstrandine, the latter containing much titanium which is a nuisance in the initial operations.

The inherent difficulties of a complete separation are prodigious — tedious labor, and long hours .not to mention the tragedies. During every 5000 operations, at least one accident occurs. Beakers and other containers, particularly those which are continuously reheated daily, must be replaced after every 500 operations. Accumulating impurities must be periodically removed, and less speed and more caution employed as one nears the end of a series.

A large-scale separation may last from 18 months to several years, depending on the quantity of material to be worked. After the initial crushing and grinding of the ore, the mineral must be "broken down;" that is, decomposed by fusion methods, or leaching or decomposing with acids or other reagents, in order to put the constituents in a condition whereby the undesirable elements may economically be removed from the desired rare-earth elements. After the separation and purification of the rare-earth elements *as a group*, the real task of separating the rare-earth elements from each other begins. The processes involved take advantage mainly of the slight differences in the physical properties of certain compounds of the rare earths. Initially, precipitation methods are employed to effect a "group separation," and this is followed by a "concentration process," during which both precipitation methods and fractional crystallization processes are employed to effect a high concentration of certain elements in various series. Finally, separate groups of series are established, and by fractional crystallization methods, absorption processes, as well as ion-exchange methods, the individual members are finally separated from each other and purified. It is well to bear in mind that no single method or process is sufficient to completely separate and purify the rare-earth elements. Many methods are used, each being employed where the other loses efficiency; or where a different method is more efficient after the removal of certain other elements. Thousands of fractional crystallization, extending into many series, are required. Long hours of daily work extending from months into years, and the ultimate in patience, perseverance, and determination, associated with the highest degree of technical skill and ability are necessary to accomplish this exceedingly difficult and almost impossible task. Pioneer work had been repeated and studied insofar as was possible, then stream-lined, with newer methods incorporated, resulting in greater efficiency, and producing the "lost" elements such as thulium.

The costs entering into a large-scale separation are very high. Not considering the labor alone involved, hundreds of beakers and other apparata, and large quantities of expensive reagents are used, particularly in the earlier stages of the work, where large quantities of

undesirable material must first be removed. Later, the quantity of reagent material decreases, beakers and other containers continue to be an expense, since all are replaced after every 500 operations to avoid risk of breakage and subsequent loss of very valuable material, as well as the loss of the attendant labor involved. The labor costs remain to the last step, and it is this factor above all which renders the final cost of the pure rare earth elements to be almost prohibitive.

The production of the rare-earth elements, particularly those of the yttrium-group, has always been, and always will be strictly a laboratory project.

The following interesting high-lights were brought out by Mr. Lewis:

Erbium has often been erroneously reported "in large amount" in certain minerals mentioned in the literature. That most of these deductions are incorrect was demonstrated through actual work on these minerals involving separations. An actual example cited was a mineral reported to contain 12% erbium: The yield of pure erbium of a purity of 99.7% was 1.2%; a total of 1.1% of purities of 95 to 99.6%; and not more than 0.5% eribum remaining in the middle fraction — a final total of 2.8%.

Most previous analytical data had been based on impure material, as for instance, the reported erbia must have contained much yttrium which had not been removed. In the lecturer's experience, he had opportunity to examine a good cross-section of material prepared by early workers, and for example, found the erbium oxide still contaminated with large amounts of yttrium, thulium, and ytterbium; the so-called "thulium oxide" was a mixture of yttrium, thulium, and ytterbium, with still some erbium remaining; and ytterbium oxide contaminated with thulium, lutecium, some erbium and scandium.

8000 factional crystallizations are required to yield pure erbium; and 18,000 separate operations are required to purify thulium. The separation of ytterbium and lutecium requires at least 15,000 fractional crystallizations. The yields are pitifully small, particularly so for thulium and lutecium.

Gram-quantities of terbium, dysprosium, holmium, erbium, thulium, and lutecium, are considered large yields. Ytterbium is the most abundant element of this group (yttrium is not considered here). Terbium, europium, thulium, and lutecium are the rarest of the entire group of the rare-earth elements, with terbium and lutecium considered the rarest of all. In a crude ytterbium-lutecium oxide mixture as first separated, the lutecium has never been found to exceed 3%, and is usually about 1% to 1.5% of the mixture.

Mr. Lewis exhibited samples of exceedingly pure oxides of *all* of the rare earth elements, and many of their salts and solutions as chlorides and nitrates. A large bottle of praseodymium nitrate was shown of a beautiful apple-green color. Samarium chloride was shown to be a topaz-yellow, as is its solution. The solutions showed the characteristic color of the salts in solution.

The characteristic colors of the pure oxides of the rare earth elements were shown to be as follows: Lanthanum oxide, pure white; neodymium oxide, a fine light blue; praseodymium oxide, black with a brownish tinge; samarium oxide, nearly white with a yellowish tint; terbium oxide, a chocolate brown color; holmium oxide, pale yellow to orange-yellow. The oxides of dysprosium, europium, gadolinium, thulium, ytterbium, and lutecium, are all a pure white. Mr. Lewis has the distinction to be the second known researcher to produce pure thulium, and render this element again available. None had been seen or reported since the death of Dr. C. James of the University of New Hampshire, who first isolated and purified this element.

The absorption bands for solutions of salts of neodymium, praseodymium, erbium, and holmium, are very strong; those of samarium, thulium, not as strong; dysprosium salts give weak bands; and those of europium and terbium are very weak. Salts of lanthanum, gadolinium, ytterbium, lutecium, yttrium, and scandium, exhibit no absorption bands.

As an illustration of divergent values, lanthanum oxide is worth 20 cents per gram, whereas lutecium oxide is valued at $1200 per gram, a vial containing 3 grams of the latter being shown. A vial containing 5 grams of perfectly white pure thulium oxide was shown valued at $5000, and is considered cheap at that! A small box of vials containing the rare members of the yttrium-group elements was shown, and valued at $20,000.

Mr. Lewis is continuing his work with the separation of the rare-earth elements, and anticipates the completion of a major series this spring. When completed, this will represent the culmination of two years hard work, embodying 12 to 20 hours per day, with no time off for Sundays holidays, or vacations. This to supply an urgent need and demand for those rare and valuable elements sorely needed in research, for studies in atomic structure, and for purposes not yet announced which may not only surprise but astonish us in the not too distant future.

February Meeting

A regular meeting of the New York Mineralogical Club was held in Room 403, Schermerhorn Hall, Columbia University, New York City, February 20, 1952, at 8 P.M., with Dr. Ralph J. Holmes presiding in the absence of

the president and vice-presidents. The speaker of the evening was Mr. Jay T. Fox of Seaford, Long Island, who addressed the members on "Photographing Minerals and Gems in Color," illustrated by both still and motion pictures.

Although the current three color process was discovered by Dr. Fischer of Germany in 1914, it was re-discovered by two American musicians in 1921, and subsequently developed by Eastman Kodak, being made available commercially by 1936.

Success in color photography depends on two factors, exposure (quantity of light) and color temperature (quality of light).

Black and white photography can be corrected by dark room techniques, great latitude being possible, but in color work the latitude is very limited, and the factors must be nearly correct. In color photography, too, the development process is long and complicated, and entirely automatic.

Three fields are embraced — photomicrography, photomacrography and microphotography.

An aperture of F22 is commonly used, and Mr. Fox employs a Kine Exacta camera of the single lens reflex type. Rigidity is, of course, essential, and illumination is derived from one No. 2 G.E. calibrated flood light. With Kodachrome, indoor film is calibrated at 3450°K., but Ansco uses 3200°K. Allowance must be made, however, for K. slowly diminishing.

A color tempterature meter is really needed although it is an expensive item. The color temperature may have to be corrected with the aid of filters. One can also use an autotransformer for correction, in conjunction with a rheostat.

For background for specimens, Mr. Fox employs millinery velvet in numerous pastel shades, as well as felt in twenty shades. His exposures are made with a synchronous motor driven timer set at f 16 or f 22. at 5, 6 or 7 seconds, the light going on and off in darkness. No focusing is done with the lens.

A special Weston 628 exposure meter is employed, although likewise expensive. In mineralogy, only incident light is utilized, and no transmitted light as in photomicrography.

Mr. Fox exhibited many projected stills illustrative of his technique and skill, and the members were entranced by their incomparable beauty and fidelity to nature such that captions were unnecessary. These were followed by an exciting and scintillating movie of gems and jewels made in co-operation with Dr. Pough at the American Museum of Natural History. Rarely have mineralogists had the opportunity of seeing such magnificent color reproductions, and the audience was enthusiastic in expressing their appreciation of the superlative projections shown by Mr. Fox.

O. Ivan Lee, Secretary
2684 Boulevard
Jersey City 6, N. J.

Los Angeles Lapidary Society

The Los Angeles Lapidary Society heard Dr. Chan Wen Ti give an interesting talk on Jade at their April meeting.

He told the legend of how Jade was first found and how it became the Stone of China. How at first it was only the rulers of the land that could possess it, how it was used to send messages before the written word was used — the pieces were usually formed in the shape of a tiger and would fit into each other so that when a message was sent the two parts would have to fit or the message was false.

About 100 or 200 B. C., the lower ranks began possessing it and how through the generations pieces have stayed in families—many of the ancient pieces having inscriptions on them.

During the Sun Dynasty carving of Jade became a perfect art, but has now become almost a lost art because of the long apprenticeship that must be spent before one becomes efficient.

He displayed a beautiful carved Chinese Figurine (just finished) from Wyoming Jade, also some other pieces depicting heaven (a green circle), north (a black half circle), and a white and red chisel (the south).

Claire Schroeder, Pub. Chairman
P. O. Box 2184, Terminal Annex
Los Angeles 54. Calif.

Queens Mineral Society

The regular monthly meeting of the Queens Mineral Society was held March 14th. After reading of the minutes and reports of the various committees, the Club was informed that changes were being made at the New York Museum of Natural History. These changes would affect the Mineralogy Section greatly. The Club voted, motion was passed that a committee be selected to represent our Group and discuss with the Director of the Museum the continuation of certain exhibits which are of great interests to many mineralogists.

The Club, after a short recess, discussed minerals from the State of Arizona with numerous minerals on display. A motion picture "Natural resources of Arizona" was than shown, followed by colored slides. Meeting was then adjourned with the next get together scheduled for April 23, date of the Club's annual dinner.

Marie L. McKay
111-20 106th St.
Ozone Park 16, L. I., N. Y.

Humboldt Gem and Miineral Soc:ety

The Humboldt Gem and Mineral Society of Eureka, California, is getting to be one of the big membership societies of California, and membership is expected to reach over 100 before midyear.

The members who exhibited stones in the Humboldt County Fair at Ferndale last year met (Thursday, March 6th) at the Redwood Acres Fair Grounds in Eureka for a discussion on entering both fairs again this year. The Fair Committee consists of A. W. Porter, Pepperwood; G. G. Chapman, Weott; Dr. H. H. Stuart, and L. E. Raice of Eureka; and Herbert L. Glines, Fortuna.

President Ogden Scoville of Eureka has promised a nice prize for the person bringing in the most new members this year.

The last meeting, held February 29th, proved to be very interesting, with a fine talk given by Dr. H. D. MacGinitie of Humboldt State College, at Arcata, on the formation of gold deposits of the Sierras from the early ages to the present time. Refreshments were served by the Committee.

The Officers for this year are Ogden Scoville, President; W. R. Lamb, Vice-President; George A. Morgan, 925-17th St., Eureka, Secretary-Treasurer; and Ella Glines, Librarian. *Board of Directors*: C. F. Starr, W. F. Loveless, George Greive, A. M. Ross, and A. W. Porter. *Refreshment Committee*: Mrs. Shackelton and Mr. and Mrs. Ed Hutchinson. *Auditing Committee*: Reginald Petty. *Mineral Sales and Display Committee*: Bud Wolf and George Greive. *Official Hostess*: Marion Graham. *Fair Committee*: A. W. Porter, Dr. H. H. Stuart, G. G. Chapman, Herbert L. Glines and L. E. Raice. *Publicity Committee*: Ed Hutchinson.

Visitors are always welcome and cordially invited. Meetings are held on the fourth Friday of every month in the Library of the Eureka Jr. High School, Del Norte and J. Sts., Eureka, Calif. This is a fast growing Society and already ranks high in the number of members.

As this has been a very wet and rainy season, field trips have been sadly neglected. Several interesting trips have been promised for the coming season, though none have been scheduled as yet.

It is hoped that display cases will be made later and placed with the Chamber of Commerce.

A new Chapter of the Western Mining Council has been formed this month in this area which promises more good will for the Society, and also gives an insight into the newer and undeveloped resources in Humboldt Co.

Anyone planning on being in this part of California during some part of the summer shouldn't find it too hard to contact some member of the Society.

March Meeting

Humboldt Gem and Mineral Society met Friday, March 28, with a full schedule. There will be no premiums offered at the Redwood Acres Fair in Eureka this year and there will be no room on the grounds for any displays, so we will have to spend more time and concentrate harder than ever on the Humboldt County Fair at Ferndale.

There will be a field trip to Big Lagoon on April 20. The gang will meet at the court house in Eureka at 9:00 A.M. Bring your lunch. Anybody and everybody welcome. There has been an occasional piece of jade picked up on this beach, also beach agates, petrified wood, and even a piece of pink and white feldspar is possible. It is an easy trip and should be very welcome after a long winter and it may expose a few "softies."

Si Lubarski of Klamath and others of the Society are going to Crescent City to try and organize a mineral club in Del Norte County at a later date. Crescent City will be notified of the "Invasion" and best wishes and a hearty welcome is extended to them.

A letter from the Federation regarding the convention at Angels Camp was read and some of the members are planning to attend. President Ogden Scoville is planning a trip to Mexico soon.

Plywood and glass for the new display cases have been arranged for and should be in the process soon.

Highlite of the evening was a talk by Dr. Stuart of Eureka, on the making of Indian artifacts and some fine examples of their handicraft were shown. Refreshments crowned a very satisfactory evening.

E. A. Hutchinson, pub.
Box 601
Arcata, Calif.

North Country Mineral Club
(Plattsburgh, N. Y.)

Our February meeting of Feb. 14, 1952, was made interesting by a talk by Mr. Arthur Sandiford on Physical Properties of Minerals and our March 13th meeting was in the able hands of Dr. Kimble Widmer of Champlain College who gave a talk on Historical Geology augmented by colored slides.

It was decided to change the meeting night of our Club in the Public Library to the second Friday of each month instead of Thursday.

In order to take care of the Teacher and Student Members of the Club, it was decided to hold the April meeting the first Friday. April 4th, because of Spring vacation.

Mrs. C. V. Hale
3 Peru St.
Plattsburgh, N. Y.

Lapidary & Gem Society of New York

Lapidary and Gem Society of New York, at its March meeting, heard Miss Gwynne Richards, noted gemologist, give an inspirational and educational lecture about, "The Vanishing Master Craftsmen."

An exhibit of the Society's lapidary accomplishments was displayed for the entire month of March, in four branches of the East River Savings Bank.

Mrs. Charles Sutherland, well known authority on gems and engravings, will give a special talk, "The History of Gems and Engraving," Monday, April 28, 8 P.M. The lecture will be held in the Seward Park High School auditorium, New York City. All visitors are welcome.

Plans for field trips to Franklin and Plainfield, New Jersey, are in the making, for April and May.

Meetings are held the second and fourth Monday of every month, 8 P.M., at our workshop, 504 East 12th Street, New York City. More information can be obtained from our Secretary, Mr. Seymour Schweitzer, 1166 Burke Ave., Bronx, New York.

Mary Elizabeth Nemetz
Lapidary & Gem Society
504 E. 12th Street
New York, N. Y.

Lapidary and Gem Society of New York

Recently, a group of amateur lapidaries formed The Lapidary and Gem Society of New York. It was their aim to work together and to exchange information and techniques. They have equipped a workshop at 504 East 12th Street, New York, N. Y., where members are free to work at their own convenience.

Members of The Lapidary and Gem Society of New York exhibited their collections at the five offices of the East River Savings Bank during the month of March, 1952.

The five exhibits that were seen are:

1. Semi-precious stones crystals; ivory carving — 26 Cortlandt Street (at Church St.).
2. Semi-precious stones set in jewlery — 291 Broadway (north of City Hall).
3. Semi-precious stones; tools and materials used in cutting and polishing of the stones — 60 Spring St. (at Lafayette St.).
4. Semi-precious stones; some mounted in jewelry; polished beach pebbles — 41 Rockefeller Plaza (at 50th St.).
5. Ore samples — 743 Amsterdam Ave. (at 96th St.)

The bank was recently pleased to learn that as a result of an exhibit at the Rockefeller Center office in February, Princess Sophie Engalischeff was asked to exhibit one of her miniatures at a showing of the American Society of Miniature Painters and won a first prize for her work.

Ohio Geological Survey Cooperates With Mineral Societies

Editor R & M:

In our first letter to you early last September, we suggested a project that we had formed and hoped to carry to a desired conclusion — namely: the invitation of local amateur mineral and lapidary organizations in the cities of Akron, Canton, Cleveland and Toledo, to present exhibits as part of the display offered by the Department of Natural Resources in conjunction with the Sportsman Shows in those cities. Our Division of Geological Survey supplied the needed cases and personnel required for the project.

I enclose a copy of a final letter which has been dispatched to the several participants in this initial project. Future means of serving these organizations, and of reaching more of the Ohio Rockhounds, are well along in the planning stage. As we accomplish our aims we will describe results for you and your readers.

Walter C. Brown
Division of
Geological Survey

The Akron Mineral Society
1895 Manchester Road, Akron, Ohio

The Department of Geology
McKinley High School, Canton, Ohio

The Cleveland Lapidary Society
7619 Redell Ave., Cleveland, Ohio

The Toledo Mineralogical Society
2001 Starr Ave., Toledo, Ohio

Ladies and Gentlemen:

We choose to write you in this manner because each of you severally acted in common concert with us. So, though you may have no immediate acquaintance in the organization other than your own, you may yet feel that it was a joint effort to reach a desired end.

To each of you we say "Well done!" and repeat it—"Well done!" Instructive and beautiful exhibits in minerals and gems that you displayed under your banner and our own, were looked upon by a few hundred more than three hundred thousand persons!

Who else in these United States has done so much so well? Take credit to yourselves for you richly deserve it. We are most proud and gratified that we could be your servant.

Cordially and most sincerely
(signed)
Walter C. Brown
Division of Geological Survey
618 W. North St.
Piqua, Ohio

Attest:
Approval and Applause
(signed)
John H. Melvin, Chief

Seal of the Division

Mineralogy Class Makes Many Trips

Vacation trips become treasure hunts of a sort for members of the mineralogy class, one of the adult education courses offered at Glens Falls, N. Y., High School. Each member of the class is building up a mineral collection of his own, and trips to other parts of the country provide opportunities to visit museums, mineral locations and quarries along the way.

The area around Glens Falls is renowned for its mineral locations, as class members have discovered in their own studies and field trips. At Olmstedville, for instance, a discovery of vesuvianite was made by Elmer Rowley, who conducts the class, and leading museums from all over the country sought samples. Vesuvianite is not uncommon, but the Olmstedville deposits were characterized by an unusually brilliant lustre and porcelain-like exterior. Specimens are now in the National Museum in Washington, the American Museum in New York City, the Field Museum in Chicago, the University of Arizona, the University of Michigan, Harvard University, the New York State Mueseum and the Royal Ontario Museum of Toronto.

Black tourmaline was discovered in 1941 at the Sacandaga Reservoir at Overlook, N. Y., and one of the finest of these crystals is in the possession of Ralph Lapham, a member of the class who obtained it on a field trip there last Fall. Radioactive minerals have also been found here. A discovery of hyalite opal at Sacandaga Reservoir was the 3rd recorded find of hyalite in New York State. At Saratoga Springs, the class found the mineral cerussite, a lead carbonate, again the 3rd recorded find of that mineral in the state.

A world famous location of fluorescents is at Grafton Center, N. H., which the class has visited. The site is widely known as a source of a complete suite of radioactive minerals, from pure uraninite to its many alteration products. To date, the class has made no discoveries sufficient to warrant the attention of the atomic research department, but one member is constructing his own geiger counter. Several others are making the special lamps used for studying the fluorescents, which have the property of absorbing ultraviolet rays and converting this light of short wave length into light of long wave length which is visible to the eye. Under its activation, hidden colors are revealed and a crystal which ordinarily is a dull gray may appear a vivid orange, yellow, blue or green.

Other sites of interest visited by the class include the manganese deposite in Vermont, fluorite locations in Westmoreland, N. H., and talc mines in Vermont. Class members have had an opportunity to hear such outstanding men in the field as Dr. Frederick Pough, curator of the Hall of Gems of the American Museum in New York City, and an outstanding authority on gems, and Dr. John Broughton, New York State geologist.

In addition to the aesthetic values of the course and the appeal it makes to the collecting instinct, an important by-product has been the companionship of persons from many walks of life and varied back-grounds in the informal atmosphere of field trips and outings.

Mineralogy is one of the courses suggested for members of the Golden Age Group which is now being organized. Mr. Rowley points out that one phase of the subject which has never been developed by the present class and which offers interesting possibilities, is gem cutting and polishing. Two of the present class members are building cutting and polishing outfits with a view to making jewelry and art objects from the minerals they find.

—Glens Falls (N. Y.) *Post-Star, March 22, 1952*

Editor's Note: Quite a number of members of the Class are subscribers for ROCKS AND MINERALS, including the instructor, Mr. Elmer B. Rowley, who resides at 214 Ridge St., Glens Falls, N. Y. Some very fine articles, written by Mr. Rowley, have appeared in ROCKS AND MINERALS.

Gem Collectors Club, Inc.

The Seattle Gem Collectors Club meets the third Tuesday of each month at the Queen Anne Field House, 2nd West and West Howe, at 7 P.M., where visitors are always welcome.

Minerals, polished and unpolished specimens, and hand-made jewelry are on display at each meeting. At the February meeting, the illustrated lecture on "Gem Locations in Utah" was given by Prof. Grant Steele of the University of Washington.

The evening of April 4th, the Club will display lapidary work and hand-made jewelry at the Green Lake Field House, which will be open to the public.

Alice Fincke
Publicity Chairman.
8812 17th Ave. N.E.
Seattle 5, Washington

Syracuse Mineral Club

A regular meeting of the Club was held on Friday evening, 8 P.M., March 14th, 1952, at Lyman Hall, Syracuse University, Syracuse, N. Y. It was the first anniversary meeting and there were 25 in attendance.

Dr. Newton Chute spoke on cleavage and parting. A talk with colored slides "Travels in the West," was given by Miss Carolyn Fix. Ice cream and cake were served after the meeting.

The Club has a membership of 35 of which 10 reside outside of the State. Those interested in attending a meeting or in joining the Club should contact either the President, Mr. R. L. Sylvester, 154 Parkside Ave., Syracuse 7, N. Y., or the Secretary, Miss Elizabeth Henes, 208 Tamarack St., Liverpool, N. Y.

Newark Mineralogical Society February Outing

Thirty-five members of the Newark Mineralogical Society journeyed to Paterson, N. J., on February 16th, 1952, where they spent the afternoon viewing the magnificent mineral collection at the Paterson Museum. The museum has made a specialty of New Jersey minerals — some of which have been found nowhere else in the world and one feature of the afternoon was a brief talk by the museum's curator, William C. Casperson, who discussed the origins of these minerals and their locations.

The beautiful zeolites and their associated minerals filled four double cases. Many of them came from Paterson quarries several years ago when excellent specimens were found in abundance. The collection of Franklin, N. J., zinc minerals is next in size, and it too contains rare specimens not found today. The museum also has a fine representation of minerals from all over the world as well as specialized collections devoted to ores, industry, radioactivity and fluorescence.

After thanking Mr. Casperson and his staff for their cordial helpfulness, the Society left Paterson feeling that this little museum is a mineralogical treasure house which should not be missed by anyone passing that way.

March Meeting

Mr. Curt G. Segeler spoke to the Society at its 289th regular meeting on Sunday, March 2nd.

This lecture on "Radioactive Minerals of Ontario, Canada" was a long awaited treat, for few of us have collected in Ontario and most of us hope to do so someday. Mr. Segeler had no difficulty in transferring his own enthusiasm for Ontario to his audience and it was not long before delighted whispers of "Well, when do we start?" were heard despite warnings of road conditions in remote areas and difficulties in finding locations. The Society was especially pleased with the manner in which Mr. Segeler presented his illustrated talk, because he not only took us to Ontario but he took us there gradually and pointed out interesting locations on the way.

After the lecture members spent the balance of the afternoon examining the several Ontario specimens the speaker had brought with him. Much attention was also given to the home made electroscope for which Mr. Segeler had earlier given simple directions for constructing. During this social period, Mr. Segeler was besieged by enthusiastic members who wanted explicit directions for reaching some of the locations he had mentioned, and he graciously obliged by showing them on a map.

March Outing

Sunday, March 30th, found the Society enjoying its first collecting trip of the 1952 season. The day was perfect. The sun was bright, the air warm, and the sky so blue that 43 members turned out to welcome Spring mineralogically. All of this was at the Summit, N. J., Trap Rock Quarry where the "peepers" were "peeping" as loud as the hammers were banging.

This is a zeolite location and it was not long before fine specimens were being found. Most of the morning was spent at the lower pit searching for the stilbite spheres which are characteristics of the quarry. Later, at the upper level, a variety of zeolites and associated minerals were found. Those interested in micromounts were very fortunate for often times a cabinet collector, after working hard to get out a specimen, would see it disfigured in the final stage of removal. Nearly always he would tenderly gather up the broken pieces and carry them to a micro-mounting pal for a look-see before tossing them away.

Our two youngest pebble puppies were present — Edwin Skidmore's very young son who had a stone in each chubby fist, and the Newick's heir who had a smile for everyone and enjoyed having his picture taken while he examined his dad's mineral hammer.

April Meeting

The 290th regular meeting of the Newark Mineralogical Society was held on Sunday, April 6th. After reports of committee chairmen, the Society heard a lecture by Mr. Howard N. Sloane, of Upper Montclair, on the subject "Speleology, the Study and Exploration of Caves."

We were surprised to learn that while approximately 3500 caves in the United States have been recorded, it is estimated that this is only ten per cent of those in existence. Mr. Sloane told us that all we know of prehistoric man has been found in caves, and that traces of 54 different prehistoric creatures have been found in caves of New Jersey and Pennsylvania.

Mr. Sloane illustrated his lecture with Kodachrome slides and touched briefly on the hazards of cave exploration and safety measures used to counteract them, life within caves, and the strange way that cave entrances are hidden. More than one member will keep the latter fact in mind on mineral ramblings in the future.

Another guest of the Society at this meeting was Mr. Joe Murphy of Texas, who is a member of the San Antonio club. Guests are always welcome at our meetings and we wish more out of town collectors would drop in as Mr. Murphy did. Our meetings are held in the Science Department of the Newark Museum, Newark, N. J., the first Sunday of each month at three o'clock.

Lucy S. DallaValle
Publicity Chairman
2 Jefferson Ave. ,Maplewood, N. J.

State Mineral Society of Texas Held Big Show

The May 2-3-4 show of the State Mineral Society of Texas, held at Pioneer Palace, Ft. Worth, Texas, was well-attended and those who participated felt that it was a very fine show. The Ft. Worth Mineral Club, under the presidency of Millicent Renfro, together with the very able assistance of John Casstevens of Ft. Worth, and Jesse Burt, state president of San Antonio, put together a smoothly run show.

Elected to the State presidency was W. V. "Bill" Vietti, 5002 Scott St., Houston, Texas; Kenneth C. Fry, 7308 Kernel St., Houston was elected vice-President and Hugh Leiper, 1700 Rabb Road, Austin, Texas, was selected Secretary-Treasurer and Editor of the Texas Bulletin.

Houston, Texas, was named as the 1953 convention city, and plans are already being laid to make this the finest and largest mineral show in the Southwest. The theme of the 1953 show will be based upon "Showing the Mineral Resources of the Southwest." Major chemical, oil and mineral company participation in the 1953 show has been almost assured, as some of the principals and directors elected are connected with some of these companies. Texas has so many major converters of its oil, mineral and chemical wealth that exhibits from these sources should be a new note to add to the fine exhibits of gem material by the local and regional societies.

The directors voted to publish a printed bulletin, yet to be named, which will be edited by Hugh Leiper. During the Ft. Worth Show, the exhibits received much favorable publicity in newspapers and were given a 15-minute radio program on a local station.

A campaign to enlarge the membership of the State Society was discussed as were plans to study and bring forward at the next show proposals for the federation of all local clubs into a Southwest Regional Federation of Mineral Societies.

The directors also authorized the president to invite the Rocky Mountain Federation of Mineralogical Societies to hold the 1953 show of that group in Houston, in conjunction with the Texas show. The first week-end in May, 1953 — May 1, 2 and 3rd was picked as the date, and henceforth, each year, the same week-end in May was proposed as the permanent meeting time. A very strong bid will be presented at Canon City, Colo., on June 26th to 29th, for the 1953 Rocky Mountain Federation Show to go to Houston.

It is suggested that Houston, largest city in the Southwest, with over 800,000 people in its environs, with very fine facilities, ample hotels and tourist courts of moderate cost, will enable the show to attract many thousands of people. Those traveling to the show can see new areas, collect in heavily-mineralized regions either going or coming, and take field trips to the famous agate and gem regions of Texas, and elsewhere in the Southwest.

One of the fine Texas gems will be shown in a exhibit at Canon City — a suite of Texas blue topaz, containing cut gems of 129 carats, 96 carats, 57 carats, 48 carats and 34 carats, together with uncut crystals ranging up to 700 carats in size, for which President Eckert of the Rocky Mountain Federation has offered space.

Not the least of the attraction is the Texas Gulf Coast, with its fine fishing; the Highland Lakes area near Austin for bass, and the famous Texas hospitality which is everywhere in evidence. The San Jacinto Battlefields and Battleship Texas are points of interest near Houston, while at San Antonio, the famous Alamo and the old Spanish Missions are points of great interest.

Hugh Leiper, Sec.-Treas.
State Mineral Society of Texas
1700 Rabb Road
Austin, Texas

Gem Cutters Guild of Baltimore, Md.

For the past several months the Gem Cutters Guild of Baltimore has been having a series of "At Homes." These are always held two weeks after the regular monthly meetings, thus bringing us together twice a month. Not all of our members have space enough to accommodate the whole group, but those who have have opened their homes to the other members for these informal meetings.

This not only helps us to get better acquainted, but also helps to solve our problems about installing our own home equipment when we see how others have met their difficulties. Nearly everyone has come away from these "At Homes" with fresh ideas about how to improve his own set-up. Thus great interest has been aroused and the attendance is always good.

Do other groups have these meetings? If they have not tried them, we believe they should, so they can see how helpful and interesting it can be.

One of our latest hostesses served a delicious fruit punch, and besides other goodies we found a large plate labelled Thunder Eggs, which turned out to be very tasty round doughnuts.

Our January "At Home" was held at the residence of Mr. and Mrs. Edward A. Geisler, who are as well known in the Washington, D. C., lapidary and mineralogical groups as in Baltimore. Mr. Geisler has been working with and collecting stones for many years and has a large and interesting collection that it is a privilege to be able to view it.

Ruth G. Emmart
Publicity Chairman
3551 Newland Road
Baltimore 18, Md.

Whittier Gem and Mineral Society

Officers for the coming year were installed recently by the Whittier Gem and Mineral Society. The occasion was a turkey dinner at the York Riding Club, prepared by Bonnie McIninch and Lily Bell and served by a committee of the members. Valentine motif was used in the decorations and 90 guests were served.

Honored guests of the evening were Jack and Dorothy Craig of Los Angeles. Dorothy Craig is the vice-president of the State Federation of Mineralogical Societies. She is also secretary of the American Federation. Later in the evening she installed the new officers of the local club for the coming year.

The new officers are Kenneth W. Tharp, president; George Cyrog, vice-president; Olin Armstrong, second vice-president; Eleanor Tharp, secretary and Mary Frances Berkholz, treasurer. New directors are Colin Mayhew; Bill McIninch and James Kirker. Francis R. Croft, retiring president is the Federation director.

After the installation, dancing was enjoyed.

March Meeting

Mr. Armand De Angelis spoke on Gem Cutting at the March meeting of the Whittier Gem and Mineral Society. Mr. De Angelis was organizer and president of the Yavapai Gem Club of Prescott, Arizona, for five years and has been a professional gem cutter of all stones, except diamonds, for thirty years. He spoke on faceting of natural and synthetic stones. Many questions were asked by members and Mr. De Angelis made an interesting statement concerning Alexandrite. While there are large synthetic stones none larger than seven carats have been found in the natural state.

Club members made Opal Mountain their March field trip and many varieties of opal and agate were found.

Anthony H. Berkholz
Publicity Chairman
6108 N. Lorelai Ave.
Bellflower, Calif.

Geode Rocks and Minerals Society

The Geode Rocks and Minerals Society of Southeastern Iowa held their quarterly meeting on April 10, 1952, in the American Legion Hall at New London, Iowa. The members of the Development Committee of Geode State Park and Lake were invited guests of the Society.

With the completion of the beautiful Geode State Park and picturesque Geode Lake, the interest in the crystal geode is growing, for which the Lake and Park are named. It was only fitting that a display of geode c ystal rocks should be shown.

Mounted on bases of Albastone were displayed the matched halves of 8 beautiful geodes — all cut directly through the center. Some geodes showed beautiful clear quartz crystals. The display was set on two tables entirely covered with green felt which extended to the floor; two 500 watt flood lights were trained on the display. These geodes were taken from a ledge less than two weeks before the display and it took a full week to cut and mount them. The largest geode weighed 110 lbs., the next 3 weighed 105, 98, and 85 lbs respectively; the remaining 4 varied from 40 to 60 lbs. each. Truly this was an outstanding display and worth all the efforts of the hard working secretary-treasurer, Earl Smith.

The Society now has two members who are equipped to cut and polish, one of whom is Mr. Earl Smith, who, in his well equipped shop, has turned out some very fine polished minerals. Mr. Smith acquired his experience from a veteran gem cutter, E. W. Gray, of Iowa City, one of the State's oldest and best known lapidaries. In turn, Mr. Smith is passing his knowledge along to vice-president Raymond Colton, of New London, who has a basement shop and together they are doing some fine work. (Mr. Colton is Ass't. Cashier of the Farmers State Bank in New London). Other members who are learning to cut and polish are Jim Marshall, Robert Dameron, and James Calloway.

The members are looking forward to field trips and many more fine meetings like the one mentioned above.

E. N. Smith, President
Geode Rocks & Mineral Soc.
New London, Iowa

Los Angeles Mineralogical Society

Scott Cook, expert diamond and gem cutter, presented an informative and entertaining talk on Diamond and Gem Cutting at the April meeting of The Los Angeles Mineralogical Society.

To be classified as a gem, a mineral must have five qualities: beauty, rarity, durability, portability, and style. The diamond alone has more of the requisite qualities and therefore is considered the king of gems. Fine rubies as large as 2½ carate are more valuable than diamonds of comparable size. Sapphires come in many colors besides blue, which is the most popular color. Sapphires which reflect a star must be cut in cabochon as faceting will obliterate the star.

Mr. Cook detailed and illustrated the cutting process from sawing of the rough diamond crystal to the faceting and polishing of the stone. The sole function of cutting is to reflect as much light to the eye as possible. Differences between popular cuts, such as round, emerald, navette and marquise, were explained.

William J. Thomas
Publicity Chairman
228 So. Oxford Ave.
Los Angeles 4, Calif.

Western Nebraska Mineral Society

The regular meeting of the Western Nebraska Mineral Society was held at Chappell, Nebraska, on Monday, April 7th, 1952, in the basement of the Chappell Memorial Library. There were 22 members and seven guests present.

Guests were Mr. and Mrs. Niebaum of Sidney, Nebraska; Gordon Glassburn of Lodgepole, Nebraska; Mr. Hadeen and Mr. Ekman of Haxtun, Colorado; and Mr. and Mrs. Dallas Coffin of Chappell, Nebraska.

A. M. Leafdale of Sidney invited the Society to attend a picnic Sunday, June 1st, in Sidney, Nebraska. The invitation was unanimously accepted.

At the close of the business meeting, Gordon Brooks gave a report on his attendance at Colorado Mineral Society meeting held in Denver on April 4th. The program consisted of each member giving a short thumbnail sketch on one important mineral. Paul Bergstrom demonstrated the efficiency of the new sanding and polishing equipment recently purchased by the Society.

After the program, delicious coffee and cookies were served by Mr. and Mrs. Ralph Brestel.

G. W. Brooks, reporter
General Delivery
Chappell, Nebr.

LOOKING BACK - - - -

Twenty-Five Years Ago in ROCKS AND MINERALS

June, 1927, Issue

Some old Mineral Localities, by C. W. Hoadley. pp. 43-45. The danburite locality at Danbury, Conn.; old zinc mine at Brookfield, Conn., the old copper mine at East Granby, Conn., which for many years was used as a prison (the terrible Newgate Prison); the O'Neill, Sterling, Forest O'Dean and other iron mines of Orange County, N. Y.; the ancient copper mines of Arlington, N. J., were some of the localities briefly described in the article.

Mineral Collecting as a Diversion, by Rev. R. A. Karpinsky, p. 45. "After once having started collecting minerals, you will only regret not having done so sooner," wrote Father Karpinsky in closing his interesting little article.

Identification of Minerals, Part 4 pp. 46-47. First principles of chemistry — contd.

Converging Trails, a poem by George Dietz, p. 47.

Notes on the Arangement of Small or Moderate Size Mineral Collections, by Morrell G. Biernbaum, pp. 48-49.

Mineral Localities of Maine, by Charles F. Marble, p. 49. The Peru Mica Mine, near the central part of the town of Peru was described.

Mineral Names, by James H. C. Martens, pp. 50-51. A short article on the origin of mineral names.

The Voice of the Stones, a poem by Elizabeth V. Browne (13 years old), p. 51.

Drifting Continents, by Benjamin T. Diamond, p. 52. According to the theory of Alfred Wegener, Professor of Oceanography and Meteorology in the University of Graz, all the continents at one time were united into one large continent which he called "Pangaea". Then the continents began to drift apart. The rift between the continents was caused by a great catastrophe like the birth of the moon from the earth, which occurred, Wegener believed, in the Cretaceous.

Gypsum or Selenite, by Prof. George A. Olson, P. 53. The article mentions some uses for gypsum.

The Gem Department, conducted by B. F. Seagle, Jr., pp. 54-56. The diamond was featured in this new department which was to run through a number of issues.

Glossary Department, p. 57. A list of various mining, mineralogical and geological terms.

Paleontology Department, conducted by Benjamin T. Diamond, pp. 58-60. The classification of fossils were featured in this issue.

PUBLICATIONS RECENTLY RECEIVED

Dana's Manual of Mineralogy. Sixteenth Edition. Revised by Cornelius S. Hurlbut, Jr.

For those collectors who are past the beginners stage and who want a good book on minerals, "Dana's Manual of Mineralogy" is recommended. All the common minerals and many rare ones, too, are listed and described. The crystallography, physical properties, composition, tests, diagnostic features, occurrences, and often the use and how it received its name are described for each mineral. Drawings and photos illustrate many minerals, a valuable asset for collectors.

The mineral index in the back (pp. 518-530) most commendatory. The minerals are listed betically (important ones in heavy type), the page number, composition, crystal stem, specific gravity, hardness, and remarks all appear opposite each mineral name.

Collectors, if you want an all-around good on minerals, so that you will know how spell their names correctly, how to test them, learn how they occur in nature, with some of their chief American and foreign localities, "Dana's Manual of Mineralogy is the book for you. It is not too technical, is nicely printed and well illustrated. A section of special interest to collectors is part 7 — Mineral Uses (pp. 424-460) — which takes up gem minerals, ornamental minerals, etc., etc., including a list of minerals suitable for a small minerals collection.

Published April 1, 1952, by John Wiley & Sons, Inc., 440 Fourth Ave., New York 16, N. Y. 530 pp., 471 figs., 22 plates and a frontispiece in color — price $6.00.

Principles of Geochemistry, by Brian Mason.

This publication is the first concise, up-to-date textbook in a comparatively new field, geochemistry, and geochemistry may be defined as the science concerned with the chemistry of the earth as a whole, and of its component parts.

Dr. Mason presents a logical account of the earth's pre-geological history, utilizing new data on the abundance of elements and isotopes in earth and universe. Such questions as the geochemistry of igneous, sedimentary, and metamorphic rocks, the origin and evolution of the ocean, the role of organisms in the concentration and deposition of individual elements, and the nature of the primeval atmosphere are discussed in detail. The book stresses the urgent need for more persistent efforts to interpret the data of geology in terms of the principles of physics and chemistry.

Published March 26, 1952, by John Wiley & Sons, Inc., 440 Fourth Ave., New York 16, N. Y. 276 pp., 42 figs., — price $5.00.

Wins Gold Medal

Vincent Giordano, 29 Cross St., West Orange, N. J., entered a number of his specimens, recently, in a Hobby Show held by the Oranges (N. J.) Y.M.C.A. and was awarded a nice gold medal.

Introduction to Geology, by E. B. Branson and W. A. Tarr. Revised by Carl C. Branson and W. D. Keller. Third Edition.

This book is divided into 2 parts — Part 1 deals with physical geology and Part 2 with historical geology. The authors have attempted to eliminate all unnecessary technical terms and to discuss geological processes and history in understandable language.

Every mineral collector should be interested in geology which subject embraces all rocks, mineral deposits, sands, fossils — just to mention a few items. Granites, pegmatites, limestones, basalts, schists — which commonly form the matrix for our choicest crystals — are some of the rocks with which every collector should be familiar. Every collector should know some geology in order to get more enjoyment out of his collection and especially is geology important when collecting in the field. For a good all-around book on geology, the well illustrated, easy reading "Introduction to Geology" is recommended.

Published April 16, 1952, by McGraw-Hill Book Co., Inc., 330 W. 42nd St., New York 36, N. Y. 492 pp., 434 figs.—price $5.50.

Minerals Unlimited New Catalog

Minerals Unlimited, 124 University Ave., Ave., Berkeley 3, Calif., have recently issued their new General Mineral Catalog. It is a 56-page publication with a nice yellow cover. Minerals listed alphabetically range from acmite to zunyite (pp. 1-40). Mineral collections, books, mineral magazines, mineralogical accessories, display cases, ultra-violet lights and geiger counters are also featured. Two good photos of the owners of Minerals Unlimited, Scott J. Williams and David B. Grigsby, appear on the inside of the front cover.

Send for your copy TODAY!

Our Youngest Subscriber—8 Years Old!

Editor R & M:

I am writing this note to get ROCKS AND MINERALS for a girl friend of my young sister, Rosalie, who is a very good collector and she sure knows her geology. She is only 7 years old but writes the best letter and is so interested in minerals that I know she will enjoy ROCKS AND MINERALS if she doesn't already get it.

The subscription is a birthday gift. Please send the first copy so it will arrive by April 2nd, when she will be 8 years old . Enclose card—gift of Rosalie Grossman.

Send the magazine to Miss Carol Triem, 14 Forge Rd., King of Prusia, Pa.

Roy H. Grossman
Batesville, Ind.

Would Like To Correspond!

Editor R & M:

Enclosed you will find $3 to cover my subscription for another year. I wouldn't be without your magazine because it gives me a lift during the winter months.

My work doesn't permit me to travel a great deal and I always envy those that seeem to be going on trips all the time.

I have a modest collection of rocks, minerals, sea shells and petrified wood. Most of my specimens were given me by friends and I have purchased quite a few from advertisers in ROCKS AND MINERALS.

My Saturday nights have been taken up for many years in music and therefore I find it impossible to join the Minnesota Mineral Club; that is still one of my ambitions if they ever change their meeting night to some other day of the week.

I plan to have a little polishing outfit in my basement some day and enjoy my hobby. I would like to write people who would be interested in a collection like mine. It isn't very valuable but maybe there is variety. I have minerals from many countries, obtained mostly from service men and friends. I have collected very little myself.

Again I want to say your magazine is my favorite reading and pastime.

Adolph A. Sidla
201-15th Ave. No.
March 5, 1952. Hopkins, Minn.

Don't Ever Cancel Me Out!

Editor R & M:

Enclose please find my renewal. Don't ever cancel me out as I will continue to subscribe and allow me to congratulate you on the 25th anniversary. You have built up a fine magazine and I take pleasure in recommending it to people several of whom have noted your name and address.

Our friend in Java hasn't come thru yet with any sand but when he does, you shall have it. And we will do our best to get some sands for you from different Peruvian locations.

I enjoyed seeing my name in print in ROCKS AND MINERALS and will try to do something to deserve mention again.

I have placed small orders with three of your advertisers, Schortmann's, Plummer's, and Wm. J. Kane and the shipments were all very nice.

Yesterday I received a piece of native copper from southern Peru, it looks like cypress evergreen stems pressed out flat. I hope it's scarce. I don't seem to get duplicates but hope to remedy this some day.

Eugene Christin
March 4, 1952. Lima. Peru

Likes the Sand Department

Friend Editor:

With more spare time in winter I've been really reading good old R & M, other times they are just glanced thru. And reading your reports of your trips, it's so like personal letters that it's just natural to call you "friend."

R & M is extremely interesting and I'm so glad about the department on Sands. I've collected sands a few years but haven't very much yet. I took some from Lake Erie last July and I have bought some, other than that, what I have is from New England.

Mrs. Cora Weston
March 15, 1952. Reeds Ferry, N. H.

COMING EVENTS

CALIFORNIA FEDERATION CONVENTION
Angels Camp, Calif.
June 20-22, 1952

MID-WEST FEDERATION CONVENTION
Macalester College
St. Paul, Minn.
July 1-3, 1952

BIG POW-WOW IN WASHINGTON
(A Rockhound Convention)
July 3, 4, 5, — Vantage, Wash.
Mrs. Barbara Blood, Sec., 1953
Taft Ave., Bremerton, Wash.

ROCKY MT. FEDERATION CONVENTION
AMERICAN FEDERATION CONVENTION
The two Federations will team together for one gigantic Convention in Canon City, Colorado.
June 26-29, 1952

NORTHWEST FEDERATION CONVENTION
College of Idaho
Caldwell, Idaho
August 23-25, 1952

FIELD TRIP TO REDINGTON CAVE, PENN.

(Continued from page 270)

but happy and full of contentment that comes from being in God's great outdoors seeing His Creations at first hand and fraternizing with one's fellowmen.

Gerry and Will Shulman
Co-Chairmen, Publicity Committee
Mineralogical Society of Pennsylvania
113 Huntington Terrace
Newark 8, N. J.